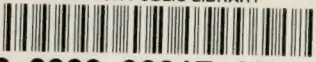


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Smithsonian Year 1988

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Smithsonian Year 1988

Annual Report of the Smithsonian Institution for the Year Ended September 30, 1988



One of the two Komodo dragons that arrived as a gift from Indonesia and took up residence at the National Zoological Park on July 13, 1988. (Photograph by Jessie Cohen)

Contents

Smithsonian Institution	7	Office of Public Affairs	157
Statement by the Secretary	9	Office of Telecommunications	158
Report of the Board of Regents	26	Smithsonian Institution Press	160
Benefactors	29	Smithsonian Internship Council	162
Financial Report	35	<i>Smithsonian Magazine</i>	163
		Smithsonian Project Discovery	164
		"Smithsonian World"	164
		Visitor Information and Associates' Reception Center	165
Research	63		
International Center	64	External Affairs	167
Joseph Henry Papers	67	James Smithson Society	168
National Zoological Park	67	National Board of the Smithsonian Associates	169
Office of American Studies	74	Office of Membership and Development	169
Office of Fellowships and Grants	74	Office of Special Events	171
Smithsonian Astrophysical Observatory	77	Smithsonian National Associate Program	171
Smithsonian Environmental Research Center	81	Smithsonian Resident Associate Program	175
Smithsonian Institution Archives	84	Women's Committee of the Smithsonian Associates	179
Smithsonian Institution Libraries	86		
Smithsonian Tropical Research Institute	89		
		Administration	181
Museums	97	Administrative and Support Activities	182
Anacostia Museum	98	Smithsonian Institution Women's Council	184
Archives of American Art	99		
Arthur M. Sackler Gallery	100	Under Separate Boards of Trustees	185
Conservation Analytical Laboratory	103	John F. Kennedy Center for the Performing Arts	186
Cooper-Hewitt Museum	106	National Gallery of Art	191
Freer Gallery of Art	108	Reading Is Fundamental, Inc.	195
Hirshhorn Museum and Sculpture Garden	110	Woodrow Wilson International Center for Scholars	198
National Air and Space Museum	112		
National Museum of African Art	118	Organization Chart	200
National Museum of American Art	121		
National Museum of American History	124		
National Museum of Natural History/National Museum of Man	130		
National Portrait Gallery	137		
Office of Exhibits Central	141		
Office of Horticulture	142		
Office of Museum Programs	144		
Office of the Registrar	145		
Smithsonian Institution Traveling Exhibition Service	146		
Public Service	149		
National Demonstration Laboratory for Interactive Educational Technologies	150		
National Science Resources Center	151		
Office of the Committee for a Wider Audience	152		
Office of Elementary and Secondary Education	153		
Office of Folklife Programs	154		
Office of Interdisciplinary Studies	156		

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SMITHSONIAN INSTITUTION

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." After receiving the property and accepting the trust, Congress incorporated the Institution in an "establishment," whose statutory members are the President, the Vice President, the Chief Justice, and the heads of the executive departments, and vested responsibility for administering the trust in the Smithsonian Board of Regents.

The Establishment, September 30, 1988

Ronald W. Reagan, President of the United States
George H. W. Bush, Vice President of the United States
William H. Rehnquist, Chief Justice of the United States
George P. Shultz, Secretary of State
Nicholas F. Brady, Secretary of the Treasury
Frank C. Carlucci III, Secretary of Defense
Richard L. Thornburgh, Attorney General
Donald P. Hodel, Secretary of the Interior
Richard E. Lyng, Secretary of Agriculture
C. William Verity, Secretary of Commerce
Ann Dore McLaughlin, Secretary of Labor
Otis R. Bowen, Secretary of Health and Human Services
Samuel R. Pierce, Jr., Secretary of Housing and Urban
Development
James H. Burnley, Secretary of Transportation
Lauro Cavazos, Secretary of Education
John S. Herrington, Secretary of Energy

Board of Regents and Secretary

September 30, 1988

Board of Regents

William H. Rehnquist, Chief Justice of the United States,
ex officio

George H. W. Bush, Vice President of the United States,
ex officio

Edwin J. (Jake) Garn, Senator from Utah

Daniel P. Moynihan, Senator from New York

James R. Sasser, Senator from Tennessee

Edward P. Boland, Representative from Massachusetts

Silvio O. Conte, Representative from Massachusetts

Norman Y. Mineta, Representative from California

David C. Acheson, citizen of the District of Columbia

Anne L. Armstrong, citizen of Texas

William G. Bowen, citizen of New Jersey

Jeannine Smith Clark, citizen of the District of Columbia

Murray Gell-Mann, citizen of California (until September
13, 1988)

A. Leon Higginbotham, Jr., citizen of Pennsylvania

Carlisle H. Humelsine, citizen of Virginia

Samuel C. Johnson, citizen of Wisconsin

Barnabas McHenry, citizen of New York

The Secretary

Robert McCormick Adams

Dean W. Anderson, Under Secretary

Alice Green Burnette, Deputy Assistant Secretary for
External Affairs/Coordinator for Institutional
Advancement

Joseph Coudon, Special Assistant to the Secretary

Tom L. Freudenheim, Assistant Secretary for Museums

Margaret C. Gaynor, Congressional Liaison

James H. Hobbins, Executive Assistant to the Secretary

Robert S. Hoffmann, Assistant Secretary for Research

John F. Jameson, Assistant Secretary for Administration

Ann R. Leven, Treasurer

Thomas E. Lovejoy, Assistant Secretary for External
Affairs

Thomas McCance, Jr., Deputy Assistant Secretary for
External Affairs/Director of Membership and
Development

Peter G. Powers, General Counsel

Ralph C. Rinzler, Assistant Secretary for Public Service

Statement by the Secretary

Robert McC. Adams

Alexis de Tocqueville's 150-year-old description of the American people and their institutions still has such penetrating and uncanny currency that it is sometimes tempting to project the cultural and intellectual history of this country in terms of a biological metaphor of growth—the slow unfolding of possibilities that all were present in the original organism. Yet there is also reason to distrust that metaphor. It gives no credit to what we have learned in passing through jarring and edifying crises like the Civil War; to the massive, continuous, and probably altogether unique reshaping of our ethnic composition with the passage of time; to the transformation not only of the conditions of life but of the perception of life itself through advances in science and technology; to the reshaping of our corporate framework as largely unprecedented institutions of education and governance were grafted onto it; and, most recently, to our new horizons of involvement—and corresponding vulnerability—as the emergence of a world system of interaction has eroded our once-unambiguous national boundaries.



Secretary Adams and Ambassador Leon M. Rajaobelina of Madagascar (left), in offices at the Smithsonian Institution, sign a Memorandum of Understanding on scientific and cultural cooperation in May 1988. (Photograph by Hugh Tallman)

There are also other reasons for recoiling from a biological metaphor. Unacceptably implicit in it is a process of inevitable decline and death as well as birth and growth. Surely we are entitled to reject any deterministic outcome, but especially such a relentlessly pessimistic one, as we view the admittedly uncertain balance of this nation's yawning problems against the deep reservoir of our remaining strengths. So the fulfillment of the possibilities of the seed, while a directing and restraining influence, is only one in a shifting mix of determinants. Forces for change alternately dominate and are held back in an irregular and indeterminate succession. Each new crisis or resolution permanently alters the existing state, opening the way to new dangers but also to new possibilities fanning out in many directions.

The Smithsonian figures in this general appraisal. If one scans the congressional debates leading to its establishment, there is in some respects little the Institution has done or become that was not at least dimly foreshadowed at its birth. We are not a national university, as some proposed. Yet our links with a number of universities are increasingly close; our predoctoral and postdoctoral fellowships and some aspects of our research organization and departmental structures are indistinguishable from those of universities; and our Resident Associate program of continuing adult education could also be succinctly described as something approaching an open university. We are not a national observatory, as still others in Congress suggested. Yet our Smithsonian Astrophysical Observatory, conducted jointly with Harvard University, is a major player in the field. We are not a national library, having at one time seemingly rejected this course decisively by making an important early contribution to the Library of Congress. Yet our public responsibilities and research needs make the gradual but continuing growth of our own specialized library resources unavoidable.

What we are primarily, of course, is a great complex of national museums. Our eclectic diversification in this direction, the absence of any significant element of guiding Cartesian logic in the sequential patterns of what we have collected and exhibited, might well have been predicted by de Tocqueville. But the emphasis on museums is itself an outcome of shifting historical circumstances that would have been difficult to anticipate.

Contributing to an early drift in the museum direction (which was opposed by Joseph Henry, the Institution's great first Secretary) was the need for a repository for national icons and for the curiosities accumulated during an era of Western exploration, skirmishing, and settle-

ment. Out of the cabinet of curiosities emerged in time an enduring, worldwide involvement in systematic collections embracing natural history. The collection of icons, tintured for the first century or so by a Whiggian concern for industry-driven Progress, was ultimately enshrined in what was first called the Museum of History and Technology. Within that edifice, now renamed the National Museum of American History, those icons and symbolic functions currently are regarded with mixed relish and ambivalence. But in any case there has been a reduction in the former salience of science and technology and a turn instead toward society and culture—drawing heavily on the diversity and disputatiousness characterizing modern historiography as practiced in American universities. Meanwhile Whiggianism, in its identification with advanced technology and with a seemingly endless march toward understanding of and domination over the natural world, is alive and well at the National Air and Space Museum. None of these developments, if you reflect on them, can be thought of as inevitable outgrowths of James Smithson's founding vision or of the Smithsonian's original charter.

Even at the unabashedly impressionistic level of these observations, the list of elements that are new and unanticipated, and that in important ways have been situationally determined, continues to lengthen. Washington, characterized by President Kennedy as "a town of Northern charm and Southern efficiency," may have been al-

most always the seat of federal government. But for more than the first century and a half it was barely recognizable as the national capital in other ways. The arrival of air conditioning was one transformational force; until then Washington was officially reckoned a hardship post by parts of the diplomatic community. But another, not insignificant element in the transformation of Washington into a true national capital has been the growth of the great complex of free museums for which this city is now noted. There is something awe-inspiring—if at times also oppressive to be part of—about the enormous, altogether unparalleled crowds of visitors from all over the world that are to be found in a number of the museums of this city.

Accompanying, but also contributing to, this growth in national influence have been a number of innovative programs that the Institution has devised or co-opted: the *Smithsonian* (and now also the *Air & Space*) magazine and the organization of more than two million National Associates on which it is based, the Smithsonian World television series, our Traveling Exhibition Service (SITES) and traveling program of lectures, and the network of locally supported receiving centers maintained by the Archives of American Art. All of these programs emanate from Washington. If they are respected and effective as forms of outreach, they also draw further attention to their central stimulus in Washington.

How long and far should this process of centralization continue? I do not suggest, in asking the question, that the Smithsonian should cease to grow when "the last site on the Mall" (immediately east of the Air and Space Museum) presently finds a new occupant. Discussions concerning the possibility of several further museums are, in fact, under way. But the character of those discussions is becoming much more broadly participatory, and the change anticipates new institutional forms that are not only geographically more dispersed but more participatory in the distribution of authority.

There are several apparent sources for this new development. Loyalties to locality are declining as communities cease to be centers of permanent occupation for growing numbers of their inhabitants and lose their social cohesiveness. Interest groups and constituencies play a correspondingly larger role, most immediately expressed through the impact of PACs on Congress. But these trends, while general and powerful, impact on the Smithsonian only indirectly. Much closer at hand are forces that have their origin precisely in the contribution of all of Washington's museums to enhancing its role as the national capital. As the Mall becomes a symbolic cultural



Education Specialist Robert Hall (left) leads a children's program at the Anacostia Museum exhibition, "Climbing Jacob's Ladder: The Rise of Black Churches in Eastern Cities, 1740-1877." (Photograph by Harold Dorwin)



The National Air and Space Museum's new restaurant, completely under glass, offers a dramatic view of the Capitol along with food from either a cafeteria or a full-service dining room. (Photograph by Jeff Tinsley)

center, equity of access and participation and sensitivity of representation become increasingly vital issues.

The readjustments now under way may be illustrated briefly by three examples. One involves ongoing discussions over the prospect of bringing the Museum of the American Indian from New York City to Washington. At this writing the situation is still fluid and it would be rash to predict the final outcome, but what matters almost more are the terms in which the Smithsonian supports its case. Only in Washington, it is argued, can the drawing together of a truly unparalleled collection contribute in full measure to an American Indian cultural renaissance. What is foreseen is a growing network of museums and cultural centers on Indian lands, in which circulating collections of authentic materials of the highest quality can be exhibited, studied, and drawn upon as historic roots for new inspiration. Needed to make this possible are hands-on programs greatly to enlarge the numbers of trained conservators, archivists, ethnohistorians, art historians, curators, and museum administrators. But no such developments would be either realistic or morally

defensible without the goodwill and leadership of national Indian organizations and the active involvement at every stage of local organs of Indian governance as well.

Similar conclusions can be drawn from discussions concerning African American culture and history. In spring 1988 the Smithsonian was directed, by the House subcommittee having jurisdiction over its appropriations, to consider and provide a report on whether a new national museum with this focus should be created under its auspices. That question, we soon realized, could not be answered in isolation. There already exists an African American Museum Association with around a hundred members, and many churches and historically black colleges and universities also have important collections and are involved to varying degrees in museum functions. Not a few of these institutions lack adequately trained staffs or are financially vulnerable. Means should be found to enlarge and strengthen the academic resources committed to the field, to support the preparation and circulation of exhibits, and to develop a network of shared information about existing collections.



Interactive video technology made it possible for Mary Tsukamoto, shown here with photographs documenting the internment of Japanese-Americans in the 1940s, to share her personal experiences with visitors to "A More Perfect Union: Japanese Americans and the U.S. Constitution," an exhibition in the Museum of American History. (Photograph by Michael Yamashita)

It is to be hoped that the Smithsonian can assist in these processes, and we are actively searching for ways in which to do so. But the existing institutions are of fundamental importance, not only for what they have already learned and collected but for their vital links of confidence and shared commitment with members of their own communities in whose basements and attics there are yet to be identified major increments to a still largely undiscovered past. Whatever moves the Smithsonian makes in this area, it is once again clear that geographical dispersion, networking, shared control, and sensitivity to the accomplishments and needs of existing institutions will furnish the indispensable keys to long-term success.

Thirdly, consider the example of Hispanic culture. Here I think it is fair to say that patterns of stereotyping and neglect have long prevailed at the international level as well as internally. In this country Latin America and the Caribbean world are thought of, when they are considered seriously at all, largely in terms of debt crises, military governments, drug cartels, corruption, and civil violence. Overlooked are immensely rich and varied cultural traditions, shining models of industrialization for

much of the rest of the Third World, the striking, recent resurgence of democratic movements, and our own, not insignificant, contributions over the years to some of the region's chronic problems. At least until recently, similarly distorted stereotyping and neglect characterized the Anglo-American view of our rapidly growing Hispanic minority, centering not on its diversity, cultural richness, and improving socioeconomic stature but on its resistance to cultural and linguistic assimilation.

The principal vehicle with which the Smithsonian proposes to contribute to these issues is an imposing array of television programs, exhibitions, and symposia—in fact, an unprecedentedly broad institutional effort, involving a majority of our museums—on the Quincentenary of Columbus's first voyage to the Caribbean. Without deprecating the boldness and decisiveness of his accomplishment, it is not primarily the "discovery" of the New World that we commemorate—that Eurocentric view overlooks the great civilizations already flourishing here long before his arrival. Celebration of the Quincentenary instead is an occasion to take account of five centuries of a hemisphere-wide encounter, and of the emergence of vigorous, new civilizational traditions out of diverse Old and New World roots. This alternate emphasis, the basis for the growing importance with which the occasion is viewed throughout Latin America as its time approaches, may help to draw our peoples together by redirecting the attention and sensitivity of many in this country as well. But its success will depend, to an unprecedented degree, on collaborative efforts involving institutions, scholars, and creative artists not only in the United States but throughout the hemisphere.

These three instances, roughly coinciding in time, point to a shift of emphasis within the Smithsonian that is under way and likely to continue. Our pace of physical growth in central Washington gives little evidence of slackening, with the Sackler Gallery and the National Museum of African Art having opened only a little more than a year ago and plans for other facilities in varying stages of preparation or discussion. But alongside of this direct growth of our own facilities, here is growth and outreach of another kind that depends upon entirely new modes of cooperation and involvement with other institutions and constituencies. What particularly differentiates these modes of association from those of the past is a concern to deepen and intensify the forms of dialogue, not merely carrying on parallel activities but sharing in the direction of common programs.

As this suggests, a concern for enhancing two-way dialogue is becoming the central means by which the Smith-

sonian can advance toward new and more ambitious goals. This applies as much at the individual as at the institutional level. Without diminishing the specialized responsibilities for which we were appointed—whether to advance the frontiers of knowledge, to maintain collections, or to contribute to the Smithsonian's complex aggregate of needs in other ways—we also can join in looking outward to the many constituencies with which the Institution is increasingly engaged. In doing so we learn, for example, that “popular” and “elitist” knowledge are categories to be creatively adjoined, not forced apart. The scholar, his or her informant, and the public to which ensuing publications are addressed are partners in a common enterprise.

I confine my further illustrations of the prevalence of these patterns to a few at the institutional level, although others can be found in virtually all our operations. There are scientifically sampled surveys of some of our museum audiences, the Contributing Members and the Resident Associates, for example, that have begun to be carried out by the newly organized Office of Institutional Studies under the direction of Zahava Doering. Some have been one-time studies of particular exhibitions or events, designed to tell us something of visitor backgrounds and reactions and so to improve them. Other surveys have probed for the level of understanding of issues portrayed in a topical exhibition like “Tropical Rainforests: A Disappearing Treasure,” contrasting a sample of those who have passed through the exhibition with another sample of those who have not. The most ambitious of these studies yet undertaken has sampled the huge visitorship at the National Air and Space Museum for a six-month period, helping us enormously as we seek to understand the backgrounds, interests, and reactions of our audience and to do a better job in promoting the Smithsonian's mission as an institution serving all members of society. About 5,000 interviews had been completed, with an 80 percent response rate, by the end of the reporting period.

A similar objective will be attained in a somewhat different way in the permanent exhibition on the Information Revolution that is in preparation at the National Museum of American History under the direction of David Allison. Highly interactive in design, this major installation encourages visitors to question or pursue further the aims of the exhibition itself through multiple computer entry points. Thus we will accumulate a record of audience reactions, concerns, and level of interest and sophistication, on the basis of which the exhibition can be progressively improved.

Interaction of an entirely different kind figures heavily

in another exhibition in which we take great pride, both for its audience impact and as a distinguished scholarly effort. “Crossroads of Continents: Cultures of Siberia and Alaska” opened in the Evans Gallery of the National Museum of Natural History in September, culminating almost a decade of collaborative planning that brought our scholars together with fellow anthropologists attached to the Academy of Sciences of the Soviet Union. Carried through under the indefatigable leadership of William Fitzhugh, this brings before the Soviet as well as the American and Canadian publics collections from both sides of the Bering Strait that have never before been exhibited in such profusion—let alone together. As a result of the long years of collaborative planning, the exhibition and its accompanying book rank as important contributions to knowledge in their own right. Many viewers report an almost emotional impact, not only from coming face to face with astonishing cultural achievements in what we think of as an exceedingly harsh and constraining environment but from their sudden awareness of how much was swept away and virtually forgotten by the incoming Russians and Americans in the eighteenth and nineteenth centuries.

A readiness for sensitive and long-continuing interaction, carried on at many levels, has been the key to other successful Smithsonian activities that involved cooperating Soviet scholars and institutions. Exchanges of folklife artists and scholars had a promising beginning during the year, and promising cooperative arrangements were concluded between the Folkways Record Company (now Smithsonian owned) and Melodyia Records, a Soviet counterpart. “Russian and Soviet Paintings, 1900–1930: Selections from the State Tretyakov Gallery, Moscow, and the State Russian Museum, Leningrad” appeared at the Hirshhorn Museum and Sculpture Garden in the summer, the sequel to other exchange exhibitions that have moved in both directions. Much of this material was entirely new to the American public, and its public exhibition has also been suppressed in the Soviet Union since the time of Stalin. For many, including this observer, the creative diversity that flourished through much of the twenties was breathtaking, correspondingly amplifying the tragic losses in the decades that followed.

So I find myself asking as the year draws to a close, what truly distinguishes the Smithsonian? What should we try harder to be and do? On the one hand, the Institution endlessly carries forward a set of ambitious probes of the limits of human experience and the ways of looking at it, challenging all our unreflective assumptions and placid routines. In this spirit, its concern is not with the

sum of received wisdom but with its cutting edges and arresting incongruities. With the especially long-enduring, for example; or the moment or process of transformation; or the unique, small or unnoticed, perhaps even consciously suppressed, and yet important in the scheme of things; or the universal or fundamental; or, not least, the endangered and deserving of conservation—like the whole of our planet.

On the other hand the Institution also has the responsibility to impart what has been learned to many audiences, and we find we understand it differently and better as a result of having done so. We view the nature of knowledge itself relativistically and problematically, in other words, in order to make it more useful as well as more universal. In that sense the Institution's dialogues and constituencies are an absolutely vital part of everything it is and does.

The Year in Review

As a unique museum complex, a major center for research, and a thriving public educational institution, the Smithsonian Institution operates in several spheres, serving a multitude of communities. In the public sphere, the Smithsonian welcomes a diverse mix of visitors to its museums and participants in its programs. They include tourists and Washington-area residents, schoolchildren and teachers, people of all ages, interests, and cultural origins. In the Smithsonian's scholarly sphere, which is largely unseen by most visitors, an extensive research apparatus grounded in a tradition of scholarship as old as the Institution itself stimulates and supports the exploration of intellectual frontiers in the sciences, art, and the humanities. Books, television, radio, the print media, and now the latest in interactive computer technology extend the Institution's reach still further. The Institution's impact is felt not just in this country, but around the world, through programs, exhibitions, and research efforts that engage the Smithsonian as an active participant in our global society.

The highlights of 1988 are ample confirmation that the Smithsonian is a lively, multidimensional institution that, year by year, expands its scope and intensifies its contributions in many spheres. Whether through an exhibition on a vital contemporary issue, research that helps protect an endangered animal species, or a workshop that shows teachers how to use museums as classroom resources, the Institution enriches the human experience on many levels—individual and collective, local, national, and international, for today and for the future.

As the year began, the Smithsonian's new museum, research, and education complex on the Mall had just opened to the public with great fanfare and popular acclaim. The vast underground complex is topped by pavilions through which visitors enter the National Museum of African Art and the Arthur M. Sackler Gallery. A copper-domed kiosk leads to the S. Dillon Ripley Center and to offices for several Smithsonian programs. The "roof" of the complex is the Enid A. Haupt Garden, with plantings that reflect the changing seasons.

This new addition to the Mall's museums had been in the making for two decades, and its impact was felt in all quarters of the Institution throughout 1988. The National Museum of African Art recorded a record number of visits—640,000—to its new and larger location. The Sackler Gallery, the Smithsonian's newest museum, presented exhibitions, programs, and symposia that introduced the public and scholars to its extensive collection of Asian art. Next door to the Sackler, the Freer Gallery of Art began a three-year renovation that will renew the venerable museum. The second exhibition to be installed in the new International Gallery in the S. Dillon Ripley Center, "Tropical Rainforests: A Disappearing Treasure," drew large numbers of visitors during the year. And hundreds of people attended educational programs, conferences, and symposia held in Ripley Center facilities and sponsored by the Resident Associate Program, the Office of Interdisciplinary Studies, the International Center, and other Smithsonian bureaus and offices. The Quadrangle complex meant an expanded role for supporting offices such as the Office of Horticulture as arrangements for special events, new indoor greenery in the Ripley Center, and the plantings in the Enid A. Haupt Garden all required careful attention.

At year's end, more than 1.6 million visits had been recorded by the National Museum of African Art, by the Sackler Gallery, and at the kiosk entrance to the S. Dillon Ripley Center. Altogether, the Smithsonian's twelve museums (eleven in Washington, D.C., and one in New York City), the Arts and Industries Building, and the Smithsonian Institution Building counted 28.6 million visits during the year, an increase of 3 million over 1987. Among the milestones this year were the 10 millionth visitor to the National Air and Space Museum's IMAX® film, *To Fly*; the busiest month ever for Smithsonian museum shops (July); and a record number of visits for a single day at the National Air and Space Museum (August 11).

A large cadre of Smithsonian volunteers had helped to make the opening of the Quadrangle complex run

smoothly, and with their continuing participation the inaugural year was a resounding success. The Visitor Information and Associates' Reception Center (VIARC) added to its volunteer force to serve the new museums; a pool of 534 volunteers now staffs sixteen information desks in eleven buildings throughout the Institution, filling sixty-two daily assignments. Providing information to museum visitors is just one of the more visible contributions volunteers made to the Institution's operation. Nearly 1,100 volunteers worked behind the scenes in bureaus and offices. Another 437 worked on short-term special projects this year, and 60 staffed the VIARC translation services group. Altogether, 5,763 volunteers gave an impressive 485,084 hours of service to the Smithsonian during 1988.

The Women's Committee of the Smithsonian Associates again provided a significant service to the Institution, making forty-one grants to museums and offices for a variety of projects that might not otherwise have been possible. The committee's sixty-three active members and seventy resource members contributed more than 700 volunteer hours to the Institution this year.

Although the pace of 1988 may have seemed almost leisurely in comparison with the milestone events of 1987, anniversaries, expansions, and openings abounded. The Museum Support Center, the Institution's innovative storage and research facility, celebrated its fifth anniversary this year. Open houses held in May gave the press, members of Congress, Smithsonian staff, and others a firsthand look at research, collections care, conservation treatment, and training activities. The Suitland, Maryland, facility is the only collections storage center of its kind in the United States, and it is considered a model for the long-term storage and preservation of museum objects.

The National Air and Space Museum improved its collections storage during 1988 with the completion of a new building at Washington-Dulles International Airport. The space shuttle *Enterprise* and other historically important aircraft that had been stored outdoors are now housed indoors where they are protected from the elements.

Expanded research facilities strengthened the Institution's prominent role as a leader in the advancement of scientific knowledge. At the National Zoological Park, a state-of-the-art veterinary hospital opened at Rock Creek Park. A new laboratory wing was added to the main building of the Smithsonian Environmental Research Center in Edgewater, Maryland, and the building was renamed for former Maryland Senator Charles McMathias, a dedicated supporter of environmental issues. In Panama, work continued on the expansion of research



Lady Bird Johnson strolls in the Haupt Garden with its donor Enid A. Haupt (left). A National Wildflower Research Center exhibit and a reception were held in the Arts and Industries Building as part of the jubilee celebration of Mrs. Johnson's seventy-fifth birthday. (Photograph by Richard Strauss)

facilities at the Smithsonian Tropical Research Institute.

At the National Air and Space Museum, visitors are enjoying the two new glass-enclosed restaurants, which opened on the Mall in September to excellent reviews by food critics and architecture critics alike. On a smaller scale, but still with the public's comfort in mind, the shady garden between the Arts and Industries Building and the Hirshhorn Museum and Sculpture Garden has been replanted and named the Mary Livingston Ripley Garden.

Exhibitions

Exhibitions, public programs, research, and collections are the four cornerstones of the Institution's activities. These are not separate functions, but overlapping, complementary ones that together shape the quality of the Smithsonian experience.

Museum exhibitions are one of the Institution's most visible links to its public. In every museum, exhibitions are the visitor's primary place of encounter with the objects that the museum collects and with the aggregate meaning those objects embody. Exhibitions help visitors appreciate the continuum of past, present, and future. They stimulate personal recollections, introduce new knowledge, clarify mysteries, and inspire contemplation. They challenge assumptions, confirm beliefs, and invite



"Demon Presenting a Plum Bough to Zhongkui, The Demon Queller," by Chang Dai-chien (China, 1926, hanging scroll, ink and color on paper), is one of five scrolls by this artist purchased by the Arthur M. Sackler Gallery in 1988. It will be included in a major exhibition of the artist's work in 1991. (Photograph by John Tsantes)

debate. And they provide a learning experience in which intellectual enrichment and the expansion of knowledge are synonymous with pure enjoyment and fun. The exhibitions organized this year by the Smithsonian's museums and its traveling exhibition service were as diverse in scope, approach, and subject matter as the Institution itself.

Some addressed subjects that have broad social consequence on regional, national, and global scales. At the Anacostia Museum, 30,000 visitors saw "Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities, 1740-1877," which vividly recounted the role of the black church as a stimulus for self-determination and rejuvenation. To commemorate the bicentennial of the U.S. Constitution, the National Museum of American History mounted "A More Perfect Union: Japanese Americans and the United States Constitution," a dramatic exhibition that explored the ramifications of racial prejudice and fear by documenting the internment of Japanese Americans during World War II. An exhibition organized by the Smithsonian Institution Traveling Exhibition Service with the World Wildlife Fund told the urgent story of the ecology and destruction of one of the most essential parts of our ecosystem. "Tropical Rainforests: A Disappearing Treasure" began its five-year national tour with a showing in the International Gallery of the S. Dillon Ripley Center.

Other exhibitions presented the creative products of artists from other countries and other cultures. Inaugural exhibitions in the new museum complex presented slices of African and Asian art and culture. The National Museum of African Art brought the public the finest in the art and culture of sub-Saharan Africa in two exhibitions: "Images from Bamum: German Colonial Photography at the Court of King Njoya, Cameroon, West Africa, 1902-1915" and "Shoowa Design: Raffia Textiles from Zaire." At the Arthur M. Sackler Gallery, a scholarly retreat was re-created in the galleries to embellish "The Chinese Scholar's Studio: Artistic Life in the Late Ming Period," an international loan exhibition of objects from the Shanghai Museum in the People's Republic of China.

A number of exhibitions reflected the diversity of the American experience. "Special Delivery: Murals for the New Deal Era," organized by the National Museum of American Art, recorded a picture of the nation's values during the Depression. The exhibition was drawn from the museum's collection of mural studies submitted in the 1930s to national competitions for commissions to decorate post offices and other federal buildings. The museum's permanent collection galleries were rehung

following the return of the exhibition, "Treasures from the National Museum of American Art," which had been on tour since February 1986.

"American Colonial Portraits: 1700-1776" at the National Portrait Gallery, the first in a series of exhibitions at the gallery commemorating the bicentennial of the U.S. Constitution, assembled an unparalleled selection of portraits from public and private collections throughout the country and abroad. At the Renwick Gallery, the 380 works of art in "Lost and Found Traditions: Native American Art 1965-1985" were stirring testimony to the will for cultural survival among native peoples of North America. Living American artists were the focus of the Hirshhorn Museum and Sculpture Garden's new WORKS series, a program of temporary installations created especially for the museum's building and grounds. Three pieces were executed this year for the series, which is the only continuing program of its kind in a major American museum.

Through other exhibitions, visitors entered the realms of science and technology. The complex, often controversial topics of the rise of molecular biology and genetic engineering were the subject of "The Search for Life: Genetic Technology in the Twentieth Century" at the National Museum of American History. Dick Rutan and Deana Yeager's *Voyager* aircraft is the centerpiece of the National Air and Space Museum's new exhibition, "Voyager: Around the World without a Pit Stop." The exhibition, which has become one of the most popular at the museum, uses text panels, photographs, and a video presentation to describe the first nonstop, nonrefueled flight around the world.

New exhibitions at the National Zoological Park continued to establish the zoo as a biological park that recreates for visitors the interrelationships between plant and animal life. In the Gibbon Ridge Exhibit, the endangered forest apes are at home in spacious new naturalistic surroundings. Ducks, geese, swans, herons, and egrets inhabit the Waterfowl Wetlands Exhibit alongside lush plantings typical of a wetlands environment.

A number of exhibitions reflected the growing sense that we are members of a global community. Several of these were "firsts." The Hirshhorn Museum and Sculpture Garden organized "Russian and Soviet Paintings, 1900-1930: Selections from the State Tretyakov Gallery, Moscow, and the State Russian Museum, Leningrad," the first American exhibition of Revolution-era Russian and Soviet art from Soviet museums.

"Then and Now: American Portraits from the Past Century" is the first international traveling exhibition or-

ganized by the National Portrait Gallery. The survey of 100 years of American portraiture was shown in museums in Hong Kong and in Sapporo and Tokyo, Japan.

"Crossroads of Continents: Cultures of Siberia and Alaska," a panoramic history of the native peoples of Siberia, Alaska, and the Aleutian Islands, is the first exhibition to have been researched and organized by a joint Soviet-American curatorial team. Developed by the National Museum of Natural History and the Soviet Academy of Sciences, with the collaborative aid of the International Research and Exchanges Board, "Crossroads" brings together archaeological and ethnographic artifacts from Soviet, Canadian, and U.S. museums in an exhibition that will travel to seven cities in the three countries.

Many of the exhibitions at the Cooper-Hewitt Museum in New York City reflected the international scope of the Smithsonian's National Museum of Design. Among them was "Versailles: The View from Sweden," showing the influence of Versailles on late seventeenth- and early eighteenth-century Swedish architecture. The exhibition was organized to commemorate the 350th anniversary of the first permanent Swedish settlement in North America.

The Smithsonian Institution Traveling Exhibition Service (SITES) brought the Smithsonian to life in museums, art centers, and other cultural institutions throughout the country. In 1988 SITES exhibitions were displayed in 333 locations in forty-four states for an estimated audience of ten million people. One of the twenty-four new exhibitions organized this year traveled to the Soviet Union. "New Horizons: American Painting, 1840-1910," the reciprocal exhibition to last year's "Russia, The Land, The People," was seen in four Soviet cities. Another highlight of the year at SITES was "King Herod's Dream: Caesarea on the Sea," which traced the colorful history of an ancient Mediterranean seaport.

Public Programs

In a unique process of communication that blends objects, ideas, and individual experience, people of all ages, interests, and backgrounds expand their horizons with the help of the Smithsonian. Through its exhibitions, programs, and special events, the Smithsonian is an agent of cultural, scientific, and visual literacy. It is a place for learning, in the broadest sense of the word. Whether the learning experience is conscious or casual, whether it occurs during an organized program or in a moment of solitary contemplation, it has a lasting impact on Smith-

sonian visitors. In keeping with the philosophy that learning is a lifelong process of enrichment, the year's agenda was dotted with educational programs for children and adults alike.

Through the Resident Associate Program (RAP), more than 296,700 people of all ages enjoyed a rich variety of nearly 2,000 lectures, seminars, courses, films, and study tours. RAP attracted a record 16,000 new members during 1988; adult course registration grew by more than 20 percent over 1987. To build on this success, RAP established a Development Office that will work to attract new audiences and new members from the Washington area's minority communities.

To serve the Institution's national constituencies, the Smithsonian National Associate Program presented lectures and seminars throughout the country and offered a tantalizing selection of tours to places around the globe. A popular new offering this year was the Smithsonian Research Expedition Program, through which Associate members can participate in two-week field research trips led by Smithsonian scientists and curators.

Efforts to extend the scope and benefits of the Institution to every segment of the public intensified this year, as a number of bureaus and offices carried out activities aimed at building an audience that reflects our society's cultural pluralism. The Office of Public Affairs set the tone for these outreach efforts with its theme for the year: "The Smithsonian. It's for everyone—and for you." A coordinated media campaign designed to reach black families resulted in thousands of written requests for information. A Spanish-language version of the Institution's monthly calendar, a bilingual brochure, and a Spanish-language television public service announcement invited greater participation by Hispanic Americans. And the office designed a media program directed to the national Native American community.

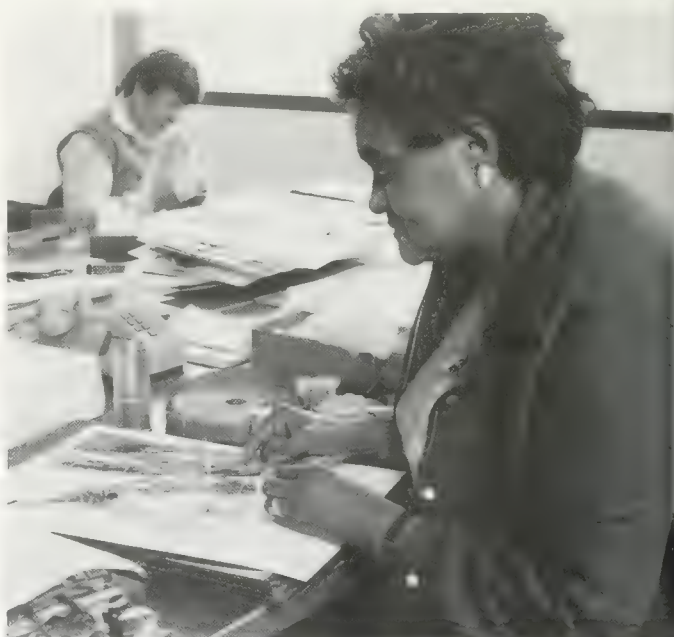
Other efforts included Institution-wide observances of Black History Month, Hispanic Heritage Week, and Asian-Pacific American Heritage Week. The Education Department of the Sackler Gallery and the Freer Gallery of Art established an advisory council to examine issues of accessibility for disabled visitors to the museums. At the Hirshhorn Museum and Sculpture Garden, a symposium for docents focused on outreach.

Outreach efforts were not limited to programs for the public, but included programs that encourage wider involvement in the Institution through research and professional education. The Office of Fellowships and Grants, in collaboration with Howard University, again offered a program to promote minority interest in natural history.

Students and faculty joined in fieldwork at the Smithsonian Environmental Research Center and learned about opportunities for research and study at the Smithsonian. The Office of Museum Programs made awards to twenty-four minority museum professionals in support of their attendance at workshops and residencies organized by the office.

Festivals, special events, and performances are an extension of the Institution's role as an agent for education and enjoyment. The twenty-second annual Festival of American Folklife drew an estimated 1.5 million people to the Mall for a celebration that extended beyond this nation's cultural richness to include the heritage of the Soviet Union. This year the festival focused on the folklife of Massachusetts; immigrant migration to Washington, D.C.; Soviet musical traditions; and the history of the American Folklore Society. Soviet performers participated as part of a long-term cultural exchange agreement between the Office of Folklife Programs and the Soviet government.

Other Smithsonian events have become community



Grace Lewis (front) and Joy Wilson, staff members of the Museum of Natural History's Department of Botany, mount and label plant specimens on archival paper. The botany plant-mounting unit, which is located in the Museum Support Center, Suitland, Maryland, celebrated its fifth anniversary in May 1988. (Photograph by Diane Nordeck)

traditions: the annual open house at the National Air and Space Museum's Paul E. Garber Preservation, Restoration, and Storage Facility; the "Trees of Christmas" exhibition at the National Museum of American History; the Kite Festival on the Washington Monument grounds; and the spring Washington Craft Show sponsored by the Women's Committee of the Smithsonian Associates.

Live performances at the Smithsonian this year reflected the spirit and purpose of the museums and their exhibitions. A concert by Washington's award-winning Eastern High School Choir accompanied the black churches exhibition at the Anacostia Museum. At the National Portrait Gallery, a dramatic portrait of playwright August Strindberg enhanced an exhibition from the Swedish National Portrait Collection. And musical programs at the Arthur M. Sackler Gallery featured masters of the sitar and the Chinese seven-stringed zither. The Resident Associate Program presented its fifth season of performing arts events, entertaining more than 32,000 people with programs ranging from the dance and music of Mongolia to a concert by singer Eartha Kitt.

Thanks to television, radio, and magazines, the Smithsonian can be experienced from a comfortable armchair as well as from a trip to the Mall. Four new "Smithsonian World" programs were produced during the year for broadcast on public television stations. The audience for each telecast of this Emmy-award-winning series numbers more than fourteen million viewers. The short-feature series "Here at the Smithsonian" aired on more than 175 television stations nationwide. Building on the success of "Radio Smithsonian," planning began for an expanded radio series designed to provide a broad picture of the Institution. The pilot program produced this year was roundly praised by public radio programmers. The Office of Telecommunications, in cooperation with the Smithsonian Film, Television, and Radio Communications Council, began production on a series of home videos with topics based on the Institution's collections and research. For approximately seven million readers, the monthly *Smithsonian* magazine was a window on the many facets of the Institution's activities. The bimonthly *Air & Space/Smithsonian* reached a circulation of about 390,000.

To enable elementary and secondary school students to enjoy the full benefits of the Institution as a center of learning, Smithsonian offices and bureaus served as resources for educators from throughout the country. The Office of Elementary and Secondary Education is a point of contact for teachers in the Washington, D.C., area

and nationwide; the office's periodicals—*Let's Go to the Smithsonian* and *Art to Zoo*—brought the Smithsonian to teachers by providing useful information about how to use the Institution as an educational resource. The National Air and Space Museum published *Skyline*, a quarterly newsletter for teachers.

The National Science Resources Center continued its efforts to enhance science teaching in the nation's elementary schools. This year the center formed a partnership with a group of Washington, D.C., elementary schools to test the hands-on science curriculum units being developed as part of the center's Science and Technology for Children Project.

More than 1,300 teachers visited the National Air and Space Museum's new Education Resource Center after its opening in January. The center provides free and low-cost educational materials about aviation and space, including slide sets, computer programs, lesson plans, curriculum packages, and audiovisual programs.

The Smithsonian Astrophysical Observatory, in collaboration with Harvard University, has developed curriculum materials that will help secondary school teachers use examples from astronomy to teach basic principles of physics and mathematics. A group of high school teachers attended a special summer institute this year to critique the curriculum materials and take them home for field-testing.

Smithsonian programs for students often begin in the classroom and continue in the museum. For more than 65,000 students, exhibitions at the National Museum of Natural History came alive through classroom materials and lesson tours. National Air and Space Museum education staff visited Washington, D.C.-area schools to tell the story of the contributions blacks have made to American aviation and to invite students to tour the museum. A group of Hopi students in northeastern Arizona participated in a special course taught by scientists from the Conservation Analytical Laboratory, who used the methods and results of their research on Hopi pottery to illustrate principles of scientific research design. During the summer, the students came to the laboratory for three weeks of hands-on learning. For students in the Office of Elementary and Secondary Education's high school intern program, the entire Institution was a "classroom" in which they explored opportunities for museum careers.

Research

Research activity conducted under the auspices of the Institution is carried out in many corners of the world. It

involves museum staff, fellows, and interns. Researchers work to advance knowledge in such diverse fields as animal medicine, the history of American art, and the biological diversity of the tropical ecosystem. They seek new frontiers in domains as vast as the unexplored galaxies outside our universe and as minuscule as the painted surfaces of artistic masterpieces. The fruits of their efforts find their way into our lives in immediate ways—through exhibitions, programs, or publications—and in far-reaching contributions to the expansion and enrichment of knowledge.

On the heels of last year's discovery of the brightest exploding star that had been seen in more than 400 years, scientists from the Smithsonian Astrophysical Observatory this year obtained the first convincing evidence for the existence of a planet outside our solar system. They detected minute variations in the motion of a faint Sun-like star, HD 114762, some ninety light-years from Earth. The variations appear to be caused by the gravitational attraction of a large, planetlike companion body in orbit about the star. The planet's probable size, its distance from HD 114762, and the likelihood that it has ovenlike temperatures make it an unsuitable habitat for life. But the discovery reinforces speculation that planets do exist outside our galaxy and that some of them might even support the development of life and the evolution of intelligence.

At the National Zoological Park, groundbreaking work in gamete research and embryo technology continued this year. Zoo researchers applied the successful in vitro fertilization procedures they have developed for the domestic cat to collaborative research with the state of Florida on the highly endangered Florida panther. Scientists have been able to recover puma eggs and achieve a 45 percent fertilization rate and the production of ten cleaved embryos. The zoo also made significant advances in endocrinology during 1988, as researchers used urine analysis techniques to study aspects of reproductive physiology in zoo species.

Scientists from the National Zoo returned this year to the Poco das Antas Reserve in Brazil for further field research under the Golden-Lion Tamarin Conservation Program. Between 1984 and 1987, U.S. zoos have gradually reintroduced groups of captive-born tamarins into the reserve, and researchers regularly spend time there to monitor the animals' progress. Some of the studies during 1988 addressed the population dynamics, reproductive cycles, and demography of this endangered species.

Researchers at the Smithsonian Environmental Research Center are measuring the impact of air pollution

on the vegetation and soil of the deciduous hardwood forests in the Chesapeake Bay drainage basin. Using instruments set up in a tall tulip poplar forest, they are studying the forest's photosynthesis, respiration, and efficiency at trapping polluting gases and fine particles.

In 1988 Environmental Research Center scientists continued to study the impact on natural plant communities of the dramatic changes in atmospheric conditions predicted for early in the twenty-first century. They have found that one of the plant species studied—*Scirpus olneyi*—showed greater productivity when carbon dioxide levels were elevated. This and other factors may limit the impact of the "greenhouse effect" on the productivity of wetlands areas.

At the Smithsonian Tropical Research Institute in Panama, the rapid disappearance of lush tropical habitats lends urgency to the work of Smithsonian scientists as they seek to advance understanding of tropical nature and its relationship to the global ecosystem. Tropical insects play an important role in the life of the forest, yet they are poorly known and difficult to study. Studies at the institute this year involving cassidine beetles, fig-pollinating wasps, riordinid caterpillars, social wasps, and male earwigs all contributed to knowledge of the vast diversity of insect habits, which may in turn shed light on the fundamental principles governing the evolution of social behavior.

Scientists at the institute are also exploring the circumstances and mechanisms of sexual selection, the impact of seasonal variations in the Panamanian climate on the physical environment and animal populations, the history of human settlement in Panama, and the domestication of wild pacas. The consequences of the 1986 Caribbean oil spill at Galeta continue to be monitored and analyzed, as do the effects of a massive die-off of long-spined sea urchins (*Diadema*) in 1983. Both calamities appear to have contributed to a decline in the growth rate of coral species; an expanded study of older coral will further examine why coral growth may have slowed.

Research at the National Air and Space Museum ranges from the history of aviation technology to rocket and space technology. Scientists in the Center for Earth and Planetary Studies continued to use satellite remote sensing to study desert regions of Earth and structural land forms on Mars. Enhanced satellite images of dune formations in Egypt, Botswana, and Mali, along with fieldwork and samples taken in 1988, have given researchers greater insight into how climatic changes affect sand formations and the movement of sand.

Research on the administration and management of

large-scale projects in the space program is now in its second year at the museum. Staff of the Glennan-Webb-Seamans Project for Research in Space History, a project of the Department of Space Science and Exploration, are involved in archives preservation activities and oral history interviews.

The National Museum of Natural History, the nation's largest research museum, continued its long-term effort to document and study rare and endangered plant and animal species in the biologically diverse Amazonian regions of Bolivia and Peru. The museum's biodiversity research involves international collaboration with the Bolivian and Peruvian governments, host country scientists and students, and international conservation organizations, all of which have a common goal: to protect species that may yield new sources of food, medicine, biological controls, and important germ plasm for agricultural use. This year the museum held workshops for biologists from Bolivia, Peru, and Puerto Rico as a first step toward training hundreds of biologists and conservationists to conduct species inventories in tropical ecosystems.

Natural History Museum scientists—with colleagues from the Charleston Museum in South Carolina—this year discovered and identified the mostly preserved skeleton of an extinct flying seabird that lived 30 million years ago. A member of the pseudodontorn, or "bony-toothed bird," family, the remarkable creature's wingspan measured as much as eighteen feet, and it may have weighed nearly ninety pounds. It is the largest pseudodontorn ever identified.

Conservators, scientists, and engineers at the Conservation Analytical Laboratory conduct specialized research that is essential to the care and preservation of museum objects. One of the laboratory's new initiatives in conservation research—a program to study the effects of cleaning solutions that conservators use to remove old varnish—will have important implications for the conservation of paintings. Together, conservators and scientists are examining the effects of these cleaning solutions on the paint layer. A photographic scientist began research during 1988 on the deterioration of glass collodion negative plates, which are extremely common in the Smithsonian collection and in photographic collections worldwide. As part of its archaeometric research program, the laboratory is collaborating with the Carnegie Institute to examine archaeological bone for traces of ancient disease and for evidence of prehistoric diets and to develop a methodology of preparing samples for use in carbon-14 dating.

The Smithsonian is the home of several projects that involve the organization, documentation, and publication of the papers of noted Americans. This year the staff of the Joseph Henry Papers continued work on volume 6 of the correspondence and private papers of the Smithsonian's first secretary. At the National Portrait Gallery, the Peale Family Papers project published volume 2 of the selected letters and documents of the artist and naturalist Charles Willson Peale and his artist sons, Raphaele, Rembrandt, and Rubens.

To visitors, the Smithsonian Institution is a treasure house of objects and ideas. To the hundreds of scholars and students who have the singular opportunity to delve beneath the surface of what visitors see, the Institution is an even richer resource. Where else can one explore topics as diverse as form, style, and symbolic content in Arctic fur clothing; the history of public health in nineteenth-century Washington, D.C.; fiber art as a manifestation of the post-World War II crafts revival in the United States; and rates of molecular evolution in marine gastropods?

This year approximately 800 undergraduate and graduate students and scholars visited the Smithsonian under the academic research programs administered by the Office of Fellowships and Grants. During long- and short-term residential appointments, they worked in collaboration with Smithsonian curators and scientists, conducted research using the collections, and investigated potential topics for their dissertation research. The office also offered a number of workshops and internships, and its short-term visitor program continued to be especially popular with scholars from developing nations.

Two fellowships were awarded this year under the newly established James Renwick Fellowship Program in American Crafts, which supports research in the history of twentieth-century American craft. Another program introduced this year, the Research Resources Program, awarded seven grants for archival projects designed to organize important collections and make them available to scholars.

Smithsonian-sponsored conferences, seminars, and symposia are fertile ground for the exchange of knowledge and ideas among scholars, students, professionals, and members of the public. The Archives of American Art sponsored three symposia in 1988, along with eight informal seminars at which art historians and American studies scholars discussed work in progress. A highlight of the programs sponsored this year by the Office of Interdisciplinary Studies was "Afro-Americans and the Evolution of a Living Constitution," a symposium organized

for the bicentennial of the U.S. Constitution. Ancillary activities included a workshop for teachers and a teleconference carried on public radio and broadcast to thirty-six colleges. The Office of Interdisciplinary Studies also inaugurated "Ways of Knowing," a forum to encourage the flow of ideas among Smithsonian staff and fellows in different disciplines and bureaus.

Smithsonian bureaus collaborated with educational institutions in degree-granting programs and presented professional training courses of their own. The Conservation Analytical Laboratory, for example, completed the first year of its joint doctoral program with the Johns Hopkins University to train conservation scientists. The first class in the laboratory's three-year Furniture Conservation Training Program completed its second year. In cooperation with the Parsons/New School, the Cooper-Hewitt Museum continued to offer a master's-level training program in the decorative arts.

Smithsonian staff, researchers from outside the Institution, and members of the public can gain access to Smithsonian resources with the assistance of various offices. Staff in the fifteen branches of the Smithsonian Institution Libraries answered more than 75,000 reference inquiries in 1988 and circulated nearly 67,000 volumes to borrowers. At the Smithsonian Institution Archives, there were nearly 1,400 inquiries, and the staff provided almost 6,000 items and 25,000 copies to researchers. Visitor Information and Associates' Reception Center volunteers handled some 55,000 pieces of mail requesting general information and reference assistance. Thirty-five hundred research visits were made to the six regional centers of the Archives of American Art in 1988.

Collections

At the heart of every museum are its collections. Smithsonian museums are especially rich in objects of art, history, and science that together preserve and present the complexity of our cultural and natural heritage. The Institution's collections are far from static. Each year, through gifts, bequests, purchases, and transfers from other government entities, thousands of objects are added to the collections held in trust for the public.

The National Museum of American Art's 1988 acquisitions included an important 1932 painting by Marsden Hartley, *Yliaster (Paracelsus)*; Thomas Cole's *The Pilgrim of the World at the End of His Journey*, ca. 1846-48; and John Trumbull's *The Misses Mary and Hannah Murray*, 1806. Among the significant acquisitions by the

National Portrait Gallery were a Gilbert Stuart portrait of the American statesman Rufus King, Marguerite Zorach's portrait of Marianne Moore and her mother, and Thomas Hicks's portrait of Edward Hicks, painter of *The Peaceable Kingdom*.

The permanent collection of the Hirshhorn Museum and Sculpture Garden was enriched by seven major works from the estate of Marion L. Ring, the most significant such gift the museum has received from a donor other than Joseph H. Hirshhorn. An important acquisition for the Cooper-Hewitt Museum was a group of 1,488 sheets representing more than 250 textile and wall-covering patterns by more than fifty designers affiliated with the Wiener Werkstätte during the early twentieth century.

Among the twenty-two works added to the permanent collection of the National Museum of African Art were a rare Yoruba staff and a unique Hongwe reliquary guardian figure. The Arthur M. Sackler Gallery enhanced its collections with several significant acquisitions, including an important pair of Japanese six-panel folding screens by an anonymous artist of the early seventeenth century. The Freer Gallery of Art acquired a pair of illustrated narrative handscrolls by a seventeenth-century Japanese painter, along with other works for the museum's Japanese, Near Eastern, and Chinese collections.

More than 6,000 musical documents and artifacts that belonged to bandleader Duke Ellington were added to the multifaceted collections of the National Museum of American History. Among other objects, the museum also acquired an antique Torah mantle dating to 1786, 300 seldom-seen photographs of inventor Thomas Edison and his family, and a 1784 copper dollar, one of the first coins in the nation's monetary system.

The National Air and Space Museum added to its collections a rare example of the Junkers-Ju 52/3m three-engined transport aircraft from the 1930s, the first widely used European commercial transport airplane. The museum also acquired a Lockheed Super Constellation, frequently used in the 1950s by commercial airlines for transatlantic flights.

A noteworthy addition to the collections of the National Museum of Natural History was an unmounted 5.03-carat round-cut red diamond. Now on display in the Gem Hall, the diamond is the only one of its kind on view in a museum anywhere in the world. From the family of collector William Bledsoe, the museum also received an unusually rich collection of 9,000 seashells, which are valuable both for their beauty and for their research significance.

Two Komodo dragon lizards, the only ones of their



A significant milestone in ground-based gamma-ray astronomy was the detection by Smithsonian Astrophysical Observatory scientists and their collaborators, using this 10-meter-diameter gamma-ray detector, at the Whipple Observatory in Arizona, of gamma rays from the Crab Nebula that establishes a standard "candle," against which to search for and measure other, weaker sources in the sky. (Photograph by James Cornell)

kind in a U.S. zoo, were a gift from the people of Indonesia to the National Zoological Park. A highlight of the zoo's new Invertebrate Exhibit, ten giant Japanese spider crabs, were also acquired this year. Nearly 1,000 births and hatchings during the year bolstered the zoo's stocks of threatened and endangered species. Among the newborns were a giraffe, orangutan, sandhill crane, Guam rail, smoky jungle frog, and Dumeril's ground boa, as

well as octopus and several clouded leopards and Pere David's deer.

The Smithsonian Institution Libraries purchased one of the rarest eighteenth-century books on the history of papermaking, *Versuche und Muster ohne alle Lumpen oder doch mit einem geringen Zusatze derselben Papier zu machen*, by Jacob Christian Schaeffer. The library also received the collection of Ladislav Segy, who operated

one of the first African art galleries in New York City.

The papers of herpetologist George W. Nace of the University of Michigan formed one of the largest of the nearly 200 groups of records accessioned by the Smithsonian Institution Archives this year. The 180 collections added to the holdings of the Archives of American Art included the papers of painter and writer Walter Pach, which are a valuable source of information on early twentieth-century modernism.

Implicit in the act of collecting is the organization and care of the objects that have been collected. In a collaborative effort by the Office of Information Resource Management, the Office of the Registrar, and bureau representatives, work continued this year on the Institution-wide Collections Information System, which now contains approximately one million records. Staff began to transfer information on the collections of the National Museum of American Art and continued to transfer data on the vast collections of the National Museum of Natural History.

Working with bureau staff, the Office of the Registrar reviewed and revised *Office Memorandum 808: Collections Management*, which discusses the issues of, authority for, and responsibility for the care and use of the nation's collections. At the National Museum of American History, the Computer Services Center developed a local collections management system that meets both curatorial and registrarial needs and began a museumwide analysis of potential computer applications in the areas of collections management, public programs, and research.

Helping the Institution function smoothly in its several spheres is a complex network of administrative and support offices. These fifteen offices and their divisions serve a range of functions, some highly visible to the public, some less apparent, but all essential.

As the year ended, three major construction projects were completed under the direction of the Office of Design and Construction: the National Air and Space Museum restaurants, the Mathias Laboratory at the Smithsonian Environmental Research Center, and the Smithsonian Child Care Center (which opened in fiscal year 1989). Construction began on the Smithsonian Information Center in the Castle, a dining and conference center at the Smithsonian Tropical Research Institute, and the Freer Gallery of Art renovation.

Administrative offices served Smithsonian staff and bureaus in a number of ways. The Office of Information Resource Management opened a Help Desk for computer

users and developed an integrated telecommunications system that joins more than 300 personal computers in a network with the central computing facility. The Office of Protection Services was involved in a record thirty-four escorts for valuable objects in transit between the Smithsonian and other museums and institutions in this country and abroad. There was renewed emphasis on affirmative action by the Office of Equal Opportunity, and the representation of minorities and women in professional and administrative positions continued to improve.

A complex institution like the Smithsonian must engage in continuing self-assessment and careful thinking about the future if it is to serve its public effectively while meeting its obligations to preserve its collections and advance knowledge. A forward-thinking attitude permeated a number of Smithsonian bureaus this year.

The Freer Gallery of Art closed its doors in September 1988 to begin a major renovation and restoration project that will revitalize the museum for the next century. When work is completed, the Freer and the Sackler Gallery will be linked underground and there will be improved access for disabled visitors. Conservation and technical research space will be triple its previous size, and collections storage space will have grown by more than 70 percent. The main-level galleries will have new artificial lighting to enhance the existing artificial light, and replacement glass ceilings will have been installed. All of these interior and exterior repairs and improvements will maintain the architectural integrity of the elegant 1923 building, which is listed in the National Register of Historic Places.

Looking to its future, the Anacostia Museum adopted a collections management policy statement that focuses the museum's collecting activity on black history. The statement, along with new acquisition, accession, and inventory procedures, will ensure a sense of purpose and organization as the museum's collections grow.

The Smithsonian Institution Archives began a decade of modernization this year with internal program reviews, an assessment of automation alternatives, and a conservation study.

Smithsonian Institution Press established a new division that is exploring projects that use interactive educational technologies. The Press also began planning for an electronic publishing venture that will make Smithsonian resource data bases widely accessible to libraries, research institutions, and individual scholars.

In another future-oriented effort, Smithsonian Project Discovery continued planning for a new multimedia cur-

riculum on the history of ideas of the twentieth century. The project will integrate television dramas and documentaries, books, learning guides, and interactive video-discs.

Staff Changes

During the last year the Smithsonian lost several particularly outstanding members of its top staff. After more than eleven years of dedicated and meritorious service as the Institution's Director of Development, our good friend James McKim Symington retired in November to pursue other interests. We were equally surprised and disappointed to receive the resignation of Charles C. Eldredge who had served with distinction as the Director of the National Museum of American Art. He has returned to an endowed professorship at the University of Kansas, whence he came just six years ago. Other job moves among the top staff included the retirement of Elbridge O. Hurlbut from the directorship of the Contracts Office and the resignation of Richard Murray as Director of the Archives of American Art to pursue scholarly enterprises in the National Museum of American Art.

At the same time we have been successful in attracting a distinguished cadre of energetic personnel to fill a variety of important positions. Thomas McCance, Jr., formerly Director of the Yale Alumni Fund, has come on board as the Smithsonian's Deputy Assistant Secretary for External Affairs/Director of Development, and Alice Green Burnette, formerly Executive Assistant to the President of Howard University, has joined us as Deputy Assistant Secretary for External Affairs/Coordinator for Institutional Advancement. Other major appointments included Anna Cohn as the Director of the Smithsonian Institution Traveling Exhibition Service, Paul B. Johnson as the Director of the Office of Telecommunications, and Vincent J. Marcalus, formerly of the Veterans Administration, as the new Director of the Office of Information Resources Management. As the year drew to a close we were able to confirm the appointments of Frank H. Talbot (Executive Director of the California Academy of Sciences) as the Director of the National Museum of Natural History and Dianne H. Pilgrim (Chairman of the Department of Decorative Arts at the Brooklyn Museum) as the Director of the Cooper-Hewitt Museum, both of whom will assume their new positions early in the next fiscal year. And, finally, we were pleased to welcome back into the Smithsonian family Charles Blitzer (at one time the Smithsonian's Assistant Secretary for History

and Art, and more recently the Director of the National Humanities Center) as the Director of the Woodrow Wilson International Center for Scholars.

This year, as in many previous ones, this host of unpredictable transitions in leadership has served to remind us, just as the new staffers take hold, that the work of the Institution continues to depend in large measure on the kind of dedication and insight for which Smithsonian staff of every stripe have deservedly earned widespread recognition.

Report of the Board of Regents

At the Regents' meeting on February 1, 1988, the Executive Committee reported that in mid-October it acted on behalf of the Board in naming the small pool within the sculpture garden of the Hirshhorn Museum in honor of Mrs. Charlotte Lehrman in recognition of a major donation from the Lehrman Foundation. In mid-November the Executive Committee also approved, on behalf of the Board, the establishment of three financial reserves to facilitate the closing of the books for fiscal year 1987 funds and to provide necessary financial flexibility in the face of several significant pending transactions. The Audit and Review Committee reported on its review of the procurement and installation of storage equipment at the Museum Support Center, approaches and outlets for research at the National Museum of American History, and preliminary discussions of a proposed policy on the periodic rotation of the Institution's independent auditors. The Personnel Committee reported that it had reviewed the financial interests statements of the executive staff of the Institution and had found no conflict of interest whatsoever. The Investment Policy Committee met and reported that it had met with the managers of the Smithsonian's endowment portfolio and had monitored their performance. In addition, the Committee met specially to discuss asset strategy in the wake of broad changes in the stock market.

Mr. Adams indicated to the Board that he was considering the Cultural Education Committee's recommendations to redress the dearth of minorities in the professional and senior management areas of the Smithsonian, and he noted that concentrated efforts recently made to bring minority personnel into professional positions had brought forward an encouraging number of candidates. Emphasizing that the Smithsonian is dealing with more than one facet of affirmative action, Mr. Adams noted that the Smithsonian has been asked for and will lend assistance in studying the feasibility of establishing an Afro-American museum in Washington.

In other reports, Mr. Adams discussed the federal and Trust Fund budgets in terms of results of fiscal year 1987, provisions for fiscal year 1988, and requests for fiscal year 1989; he brought forward a draft of the *Five-Year Prospectus, 1989-1993* for the Regents' consideration; and he outlined a policy on establishing priorities in the restoration and renovation of buildings and in major construction projects. Following Mr. Adams's presentations, Drs. Robert S. Hoffmann and Thomas E. Lovejoy spoke to the Regents about their perspectives on assuming their new positions as Assistant Secretary for Research and Assistant Secretary for External Affairs, respectively.

After the Secretary described the new vision that he and Dr. Martin O. Harwit, the new director of the National Air and Space Museum, had developed for the extension of that museum at a nearby airport, the Board of Regents encouraged the Secretary to proceed with a planning study consistent with that program. The Regents also reaffirmed their earlier presumptive support for the use of a site at Washington-Dulles International Airport, recognizing, however, that no final commitment regarding a site could be made at least until all of the program, financial, and site studies have been completed. In an ensuing discussion, the Secretary briefed the Board on developments with respect to the Museum of the American Indian and he received guidance from the Board that would be of importance in future deliberations with other interested parties. Among other actions, the Regents named the expanded laboratory at the Smithsonian Environmental Research Center in honor of former Senator Charles McC. Mathias and appointed Wanda M. Corn, Ronald Abramson, Barney Ebsworth, Patricia Frost, and Melvin Lenkin, and reappointed Wendell Castle, Sharon Percy Rockefeller, and Margaret Dodge Garrett to the Commission of the National Museum of American Art. The Regents also received status reports on a wide range of significant Smithsonian activities.

On the preceding evening, Sunday, January 31, 1988, the traditional Regents' dinner was held in the National Air and Space Museum in honor of Dr. David Challinor, the outgoing Assistant Secretary for Research. After dinner the Secretary rose to welcome the guests and to speak briefly about the new vision that Dr. Harwit has brought to the Air and Space Museum. The Chancellor paid honor to Dr. Challinor and presented him with the Henry Medal, as approved by the Board of Regents, along with a citation that had been prepared in handsome calligraphy.

The Regents' second meeting of the year was called to order in the Regents' Room on Monday, May 9. The Executive Committee reported that, on April 14, its chairman, Mr. Carlisle Humelsine, had issued a public statement endorsing the position that the Secretary had taken in the media with respect to amendments to S. 1722, legislation introduced to provide facilities for the Museum of the American Indian in New York and Washington. The Executive Committee expressed concern that the revised legislation would establish a museum on the Mall without ensuring that it would have responsibility for substantial permanent collections. Also concerned that authorities proposed for the museum's Board of Trustees would violate the Smithsonian's Charter and

cripple its management, the Executive Committee urged the Senate Rules Committee to act cautiously and ensure that the interests of both the Institution and the American Indian people are well served.

Concluding its deliberations on the proposal to establish a policy of periodic rotation of the independent auditors to introduce into the auditor relationship a degree of competition and assurance of objectivity, the Audit and Review Committee recommended, and the Regents agreed, that the Smithsonian should issue a Request for Proposals and select the most highly qualified firm to conduct the annual audits for the next ten years, with the understanding that the present independent auditors not be excluded and that the contract with the successful respondent be completed in time for work on the audit of fiscal year 1989 financial statements and records. The Audit and Review Committee also reported that it had reviewed research currently being conducted in the National Air and Space Museum, had received a "clean opinion" from Coopers and Lybrand on its audit of the Smithsonian's financial statements for fiscal year 1987, had received an annual report from the Smithsonian's Office of Audits and Investigations, and had conducted a preliminary discussion of certain financial and administrative practices. The Investment Policy Committee reported that it had established minimum levels for fixed income and equity holdings for the total endowment portfolio, and the Board of Regents approved the Committee's recommended 3.5 percent increase in the total income return for fiscal year 1989.

The Secretary and his staff briefed the Regents on current year funding, and in that context the Regents approved the establishment of quasi endowments from the bequests of Joseph H. Hirshhorn and Charles H. Ettl. Mr. Adams also informed the Board about the status of *Air & Space* Magazine, the concept of enhancing Smithsonian resources for activities abroad through "debt swap," and the receipt of donations of blocked foreign currencies, various legislative actions and issues, and the considerable efforts of the Smithsonian's bureaus and offices to comprehensively take into account Afro-American interests with regard to programming. The Secretary also presented to the Regents his annual report, *Smithsonian Year 1987*, which was accepted with enthusiasm. Additional reports included those on National Air and Space Museum extension planning, the status of the Tropical Research Institute in the Panamanian situation, affirmative action initiatives, and ten additional status reports on a wide variety of topics.

The Secretary reported on developments with respect

to the Museum of the American Indian since the last meeting of the Board. Following a lengthy discussion, which Senator Daniel Inouye joined, the Regents authorized the Secretary to continue negotiations with the Chairman of the Select Committee on Indian Affairs toward further revision of S. 1722, and the Regents also asked their Executive Committee to make recommendations to the Board in regard to the proposed legislation.

The Regents' dinner was held on the previous evening in the Arts and Industries Building. After welcoming the Regents and their guests, including the members of the Cultural Education Committee and the Committee for a Wider Audience, and speaking briefly about the origins and establishment of these committees and their importance to the Institution, he explained the concepts of "representation" and "cultural equity" and expressed confidence that the Smithsonian will move sensitively in these areas. Mrs. Jeannine Smith Clark, founding co-chairman of the Cultural Education Committee, rose to introduce Mr. Richard West, another founding member of the Cultural Education Committee, who focused on the recommendations of the Committee toward enhancing the Smithsonian's affirmative action program and spoke candidly about areas in which substantive improvements are needed.

The Regents' third formal meeting of the year was held on September 19, 1988. In anticipation of his retirement from the Congress, the Board designated Congressman Edward P. Boland as a Regent Emeritus. The Regents also accepted with regret the resignation of Dr. Murray Gell-Mann as a member of the Board and gave preliminary consideration to a proposal to amend their Bylaws to include a nominating committee as a standing committee. The Audit and Review Committee reported on its review of Coopers and Lybrand's plan for their consolidated audit of fiscal year 1988 funds, its further discussion of weaknesses in certain administrative and financial practices, its tour of the new Veterinary Hospital at the National Zoological Park, its review of a conceptual study of an extension of the National Air and Space Museum, and its discussion of the competitive bidding process for the Institution's independent auditor. The Investment Policy Committee noted that the endowment's asset allocation had been adjusted in accordance with the Regents' mandate. With the approval of the Board, the Chancellor appointed Congressman Mineta as a member of the Investment Policy Committee.

Mr. Adams reported on actions being taken to manage properly the lands of the Environmental Research Center in Edgewater, Maryland, in keeping with its research

mandate, and Mr. Lovejoy discussed the major new development initiatives. The Secretary added his hope that the Smithsonian would have an important role in the development of a national center for biological diversity because of Institution's significant research in the natural sciences. The Regents were briefed on the status of the Smithsonian's contract for the sale of its former Museum of African Art properties on Capitol Hill.

After receiving reports on the current year funds, the Regents approved expenditures in keeping with budgets for fiscal year 1989 and authorized the Institution's request to the Office of Management and Budget for fiscal year 1990 appropriations. The Regents also gave preliminary consideration to a draft of the *Five-Year Prospectus for Fiscal Years 1990-1994*. Brief reports were prepared for the Regents' information and discussion on legislative initiatives, major development projects, Afro-American museum possibilities, and progress in affirmative action.

The Regents noted that recently revised legislation on the National Museum of the American Indian represents an enormous step forward in discussion and takes into account Smithsonian concerns over governance and custody of the collections but needs still further revision to address a few serious difficulties. Accordingly, the Regents agreed that the Secretary should continue to work with Senator Inouye toward an acceptable bill and inform the Executive Committee of any impending action.

Introducing the conceptual study of an extension of the National Air and Space Museum, Mr. Adams commented that it serves as an increasingly persuasive intellectual justification for further studies toward its realization. In discussion, the Board acknowledged, as had the Audit and Review Committee at its September 14 meeting, that over the years the Regents had expressed (and may continue to hold) a preference for the site at Dulles airport, but it would be in the best interest of the project to determine what material conditions might accompany offers from both Baltimore-Washington International and Dulles International airports. The Board authorized further studies to include the most appropriate location for the extension, an element-by-element program of detailed space requirements, forecasts of visitation, an identification and evaluation of alternative means of visitor transportation, and an analysis of financial feasibility.

Responding to recommendations from the respective commissions, the Regents voted to reappoint Robert F. Thompson and the Honorable Walter E. Washington and to appoint Charles B. Benenson, the Honorable John Conyers, Jr., Helen Kuhn, and James L. Hudson to the

Commission of the National Museum of African Art, and they voted to appoint Jeannine S. Clark to the Commission of the National Portrait Gallery. After voting to name the special exhibitions gallery of the National Museum of American History in honor of that museum's founding director, Frank A. Taylor, the Board of Regents received and discussed a dozen reports on the status of various Smithsonian activities.

At the Regents' Dinner held in the National Air and Space Museum on the preceding evening, the Chancellor hailed the opening of the museum's new restaurant on the previous day and the Regents and their guests were given a short presentation on the recently installed exhibition on the European Space Agency's Giotto spacecraft. Dr. Harwit explained that the Giotto had made unprecedented close observations of Halley's comet in 1986 and confirmed the hypotheses postulated in 1951 by former Smithsonian Astrophysical Observatory director Fred L. Whipple. Dr. Whipple in turn offered commentary on a videotape that showed close-up views of the comet's core as recorded by the Giotto mission. Upon the conclusion of this brief program, the guests walked through buffet lines and were seated for dinner in the "Flight Line" cafeteria.

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The Smithsonian gratefully acknowledges the support of the individuals, foundations, and corporations listed below, whose gifts, bequests, and contributing memberships aided the work of the Institution during the past fiscal year.

The Smithsonian owes its founding to the generosity of one individual. During most of its history since 1846, the Institution has relied upon a combination of both federal and trust funding to carry out the terms of James Smithson's will. As a trust instrumentality of the United States, the Smithsonian has received federal appropriations for research, exhibition of the national collections, and maintenance of the valuable objects of science, history, and culture entrusted to it.

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Financial Report

Ann R. Leven, Treasurer

For the fiscal year ending September 30, 1988, federal appropriations provided \$201,432,000 to fund ongoing operations. This was a most welcome increase of \$12,459,000 or almost 7 percent over fiscal year 1987. A meager \$118,000, less than one-tenth of one percent of the year's appropriation, was returned to the Treasury at year end, representing uncommitted salaries and expenses.

The year, however, was somewhat more chaotic with respect to nonappropriated funds. Black Monday heralded fiscal year 1988. By year end, the Institution's endowment had rebounded to within \$13,292,000 of its market value as of September 30, 1987. While the volatility of common stock prices within the endowment portfolio had no immediate effect on spendable income, the Institution was reminded of the fragility of this vital resource and heartened by donors' confidence during this period; \$14,700,000 in new endowment monies were added to the fund.

Of special interest and more immediate impact to our visiting public was the opening of the new National Air and Space Restaurant on September 17, 1988. This addition to the Smithsonian's most popular museum offers a cafeteria and a full service restaurant with combined seating for nearly a thousand patrons. Visitor response and press reviews have praised both the architecture and the food service at this much-needed facility.

Operations

The Institution's mix of federal appropriations, government grants and contracts, and trust funds continued to provide a firm financial base for operations. Federal dollars are the principal source of funding for the Institution's research, exhibition, education, and collections management programs, as well as related administrative services. Thanks to the deeply appreciated support of Congress, appropriated funds were sufficient to allow for continuation and selective enhancement of these program areas. New initiatives included staffing and equipping the Smithsonian Tropical Research Institute's new Tupper Center in Panama, development of instrumentation for submillimeter wave astronomy, planning for reinstallation of the National Museum of Natural History's American Indian halls, and preparations for commemorating the Columbus Quincentenary.

Government agencies and bureaus, utilizing project grants and contracts issued to the Smithsonian, offered an important additional source of research funding, par-

ticularly for the Smithsonian Astrophysical Observatory and the National Museum of Natural History/National Museum of Man. Funded projects included development work on stellar interferometers, an instrument used for making measurements used in astronomy and of special interest to the National Aeronautics and Space Administration; a study of tropical ecosystems in Bolivia; and a research effort to determine acidity levels in rivers and the resulting effect on fish.

Source of Funds	Gross Revenues (\$1,000s)	Net Income (\$1,000s)	Net Income (%)
Federal			
Appropriation	\$201,432	\$201,432	70
Government			
Grants and			
Contracts	17,438	17,438	6
All Trust Sources	225,152	67,742	24
Total Available for Operations	\$444,022	\$286,612	100

Trust funds—that is nonappropriated income from gifts, grants, endowments including the original Smithsonian bequest of 1826, current investments, and revenue-producing activities—provide the Institution supplemental base support as well as that extra margin for experimentation and bold initiatives. Such support is a relatively recent phenomenon at the Smithsonian that began in the 1970s. The Smithsonian is especially grateful to its many friends—individuals, foundations, and corporations listed in the section “Benefactors of the Smithsonian Institution in 1988”—whose generosity contributed so importantly to our work. During the fiscal year, the Institution took significant steps to enhance its development activities under the newly appointed Assistant Secretary for External Affairs, Dr. Thomas J. Lovejoy. This action is especially timely as the year saw a 13 percent drop in restricted gifts and grants designated for operating purposes. It remains unclear at this writing whether uncertainties over the stock market, changes in the tax laws or the lack of appeal of certain projects for which funds were solicited caused the decrease. Whatever the reason, the availability of unrestricted monies generated by the Institution's revenue-producing activities proved key to trust fund stability.

Available unrestricted trust funds were allocated to institution-wide priorities including \$1,883,000 for acquisi-

tions, \$3,160,000 for special exhibitions, \$2,949,000 for fellowships, \$2,950,000 for scholarly research, and \$550,000 for educational outreach. Translated into specifics, trust funds purchased a painting for \$600,000 entitled *Yliaster* by Mardsen Hartley for the National Museum of American Art, an 1839 portrait of Edward Hicks by Thomas Hicks for \$371,250 for the National Portrait Gallery, and a painting for \$360,000 by Phillip Guston done in 1976, entitled *Ancient Wall* for the Hirshhorn Museum and Sculpture Garden. Funded exhibitions include "Women in the Progressive Era" at the National Museum of American History, "Beyond the Java Sea" at the National Museum of Natural History, and "Photography of Invention" at the National Museum of American Art. As well, 332 interns, graduate students, postdoctoral fellows, and visiting scholars studied at the Smithsonian with Institutional support.

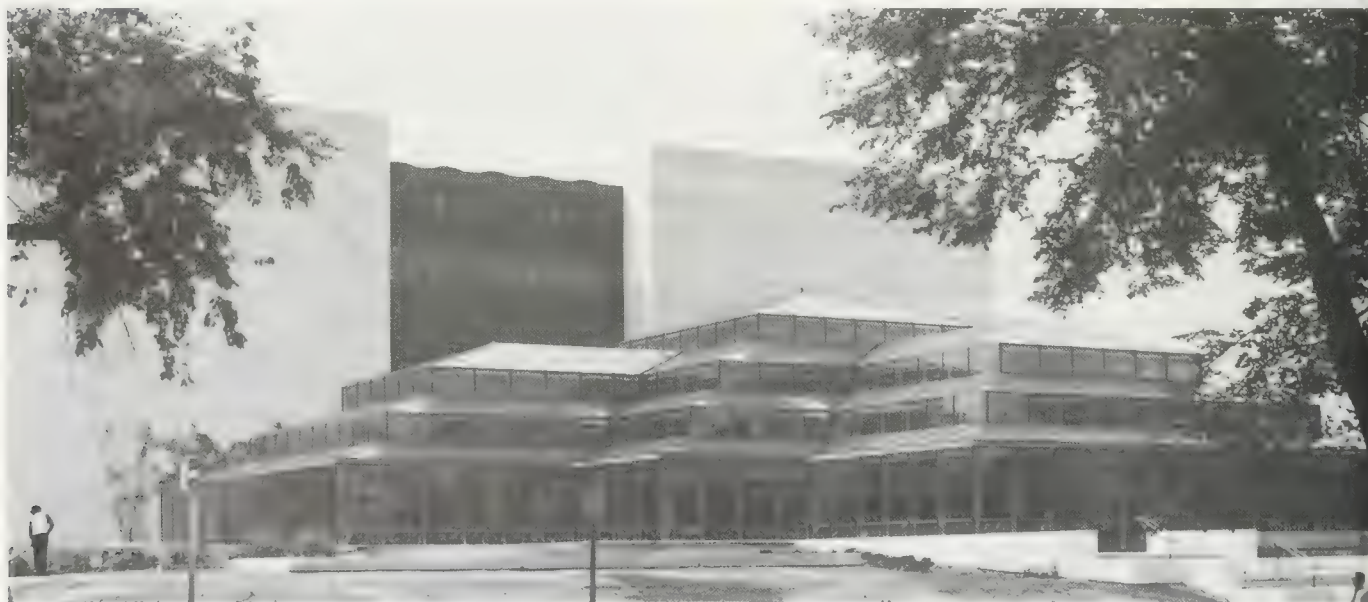
In addition, an amount of \$3,000,000 in trust revenue was transferred to endowment in keeping with the practice of recent years aimed at strengthening this important asset. Trust fund income was sufficient to increase the unrestricted trust fund balance by \$3,860,000 to a total of \$9,036,000. The Institution is attempting to raise the fund balance to a level of 5 percent of gross revenues over time. This goal is in recognition of ever-increasing finan-

cial uncertainties within the financial markets and tax changes under discussion in Congress, which could impact the Institution's revenue-generating activities.

These activities include the Associates membership programs, Museum Shops, Mail Order, and the Smithsonian Press. All are publicly appealing outreach activities tied very closely to the Institution's mission "the increase and diffusion of knowledge." Sales desks in fact were established at the Smithsonian as far back as the 1860s. Museum Shops carry guides to the collections, related books and educational materials, and adaptations of museum objects for the visitor to enjoy and carry home. *Smithsonian Magazine* and *Air and Space Magazine* along with the Mail Order catalogue bring the museum experience into the homes of members across the country and in foreign countries who cannot visit the Mall.

Business Management Office

Four revenue-producing activities report directly to the Treasurer—Museum Shops, Mail Order, Product Development and Licensing, and Concessions. Clearly, the highlight of the year was the opening of the new restaurant at the National Air and Space Museum. Food service



National Air and Space Museum Restaurant.

there is provided by Guest Seives, Incorporated, under a contract with the Smithsonian. Early indications portend a highly successful operation.

This success results from the hard work and dedication of Smithsonian staff and the cooperation of numerous contractors. The Smithsonian Office of Design and Construction, in conjunction with the Office of Procurement and Property Management, worked long and hard to bring the project in on time and under budget. Special thanks are due to Robert Perkins, procurement officer, and Thomas Myers, project manager. The Riggs National Bank provided eleven million dollars in unsecured construction financing for the project supplemented by Institutional working capital. Total construction costs were \$14.4 million. The loan will be repaid from concessions revenue. Thus, no federal funds were required or will be requested to provide the public with greatly expanded and improved food service. The restaurant was designed by Hellmuth, Obata, and Kassabaum; Charles H. Tompkins was the general contractor.

The cooperation of the National Air and Space Museum staff was critical to the project. Claudia Oakes, Chairman, Department of Aeronautics, was a devoted and key member of the project team from its inception. Although the Treasurer and the Business Manager, James J. Chmelik, initiated the restaurant project, credit goes to Roland Banscher, Concessions Manager, for his unstinting effort and full commitment to making the seemingly impossible possible.

Clearly, the new National Air and Space Restaurant dominated business management activities during 1988. However, such singlemindedness of purpose was only possible given the strong leadership of Samuel J. Greenberg, Director of the Museum Shops; John Giesecke, the new Director, Mail Order, and Lisa Stevenson, Director of Product Development and Licensing. These capable managers and their staffs exceeded performance objectives. John Giesecke joined the Smithsonian in November 1987, following many years with Neiman-Marcus; we welcome his new insights to our operations.

Construction and Plant Funds

Each year in addition to an appropriation for salaries and other operating expenses, the Institution receives appropriations in support of the restoration and renovation of its facilities. In fiscal 1988, \$19,254,000 was appropriated for these purposes. Projects funded included work on fire detection and suppression systems, utilities, facade restoration and replacement, and routine repairs.

Appropriations for new construction provided \$1,315,000 for design, roadwork, and site preparation for the Whipple Observatory base camp in Arizona. A separate federal appropriation of \$8,150,000 was specifically for renovation of an existing building at the National Zoological Park into a modern research facility and hospital. The Earl S. Tupper Research and Conference Center at the Smithsonian Tropical Research Institute, jointly funded by Congress and a generous gift from the Tupper family, nears completion.

Endowment

The Smithsonian endowment fund was valued at \$220,829,000 on September 30, 1988. This represents a decline of 8.8 percent from the same date last year. The recovery from October 19, 1987 ("Black Monday"), has been an arduous one, but the Smithsonian endowment has in fact outperformed the market indices for the fiscal year (Standard and Poors, -12.4 percent; Dow Jones Industrial Average, -15.5 percent; South Africa Free -12.2 percent).

The Investment Policy Committee of the Board of Regents, chaired by Regent Barnabas McHenry, with members Regent Carlisle H. Humelsine, Donald Moriarty, Charles H. Mott, William R. Salomon, Thomas J. Watson, and Jane Mack Gould focused on asset allocation in order to maintain an appropriate level of diversification within the portfolio and to protect it against further sudden fluctuations in equity values. Cambridge Associates was asked to assist the committee in developing new portfolio guidelines for the Institution's investment advisors.

At its April 1988 meeting, the Investment Policy Committee voted unanimously to mandate a minimum of 25 percent in fixed-income investments and 45 percent in equities as opposed to the Institution's historical equity orientation. The Institution's balanced managers, Fiduciary Trust Company of New York, and Miller, Anderson and Sherrerd, have complied with this guidance from the Committee. The Smithsonian's equity managers, Battery-march Financial Management and Nova Advisors were not affected by the policy change.

The Committee was notified at its Fall 1988 meeting that Nova Advisors was withdrawing as one of the Institution's outside managers. Assets under Nova management were redeployed to the other advisors. The Smithsonian portfolio had the following asset mix as of September 30, 1988: 61 percent equities, 25 percent fixed

income, and 14 percent cash or cash equivalents. The portfolio is "South Africa-free."

Just over \$14.7 million in new monies were added to the endowment this fiscal year. This sum includes transfers of \$4.3 million from unrestricted funds, a gift of \$2.8 million from the estate of Joseph H. Hirshhorn, a gift of \$5.0 million from the Holenia Trust, a gift from the estate of Charles Ettl of \$.8 million, and \$1.3 million from the sale of works of art deaccessioned by the Hirshhorn Museum and Sculpture Garden following covenants of its Board of Trustees.

The Institution utilizes the "total return" approach to investment management of its consolidated endowment funds. Income available for current expenditures is based upon the calculation of the five-year average of the market value of each fund. As to the use of principal, 40 percent of the funds is restricted; 60 percent is unrestricted. Of the resulting income 54 percent is restricted as to purpose; 46 percent is unrestricted.

Financial Management Activities

The focus for the year was improving financial systems within the Treasurer's Office. In addition to systems implemented, the groundwork was laid for significant changes to the Smithsonian's accounting system. The progress to date results from the coordination and cooperation of the Office of Accounting and Financial Services, the Office of Financial Management and Planning, and the Office of Risk Management. These offices, which report to the Treasurer, are jointly responsible for the control, security, and disposition of the funds detailed in the accompanying reports.

Nearly a year's preparatory work culminated in the implementation of a new personnel/payroll system utilizing the services of the Department of Agriculture's National Finance Center. Following conversion in November 1987, work continued to resolve minor problems and to build support and control systems to ensure efficient operation of the new system.

Major effort was devoted to updating and improving the Institution's dated accounting system. The emphasis was twofold: (1) identifying and testing potential software, and (2) analyzing the capacity of existing hardware to meet the needs of a new system. Price Waterhouse assisted in this work. Simultaneously, staff worked to simplify, clarify, correct, and document elements of the current system so that an eventual implementation would be facilitated.

Programming was completed on a new investment management information system, which became operational with the start of the 1989 fiscal year. The project to develop disaster preparedness plans for the Institution was facilitated by the development of unique personal computer software conceptualized by Phillip H. Babcock, Director, Office of Risk Management.

A management study completed during the year recommended a restructuring of the Contracts Office. As a result, a new office called the Office of Sponsored Projects was created to carry out negotiation and administration of government grants and contracts. This new office became part of the Treasurer's Office effective October 1, 1988. Other functions of the Contracts Office have been assigned to the Office of Procurement and Property Management.

Audit Activities

The Institution's funds, federal and nonappropriated, are audited annually by the independent public accounting firm of Coopers & Lybrand. In conjunction with the 1988 audit, Coopers & Lybrand reviewed the new personnel/payroll system to ensure all necessary controls were in place. Coopers & Lybrand's unqualified report for fiscal year 1988 is reprinted on the following pages. The letter of transmittal and the statements have been modified as required to conform with the most current generally accepted accounting and audit standards. The Institution has also chosen to simplify the accompanying tables prepared by the Treasurer's Office.

The Smithsonian's internal audit staff regularly reviews the Institution's financial activities and fiscal systems, assists the outside auditors, and does special projects as required. In addition, the Defense Contract Audit Agency audits grants and contracts received from federal agencies and monitors allocated administrative costs. The Smithsonian conducted its Institution-wide triennial internal control review in 1988. This process helps identify internal control weaknesses and identifies responsible offices for remedial action under the oversight of the Under Secretary.

The Audit and Review Committee of the Board of Regents, chaired by Regent David C. Acheson, met three times during the fiscal year pursuant to its fiduciary responsibilities under legislation pertinent to the Institution, and the bylaws of the Board of Regents. In addition to reviewing the 1987 audit performed by Coopers & Lybrand, and the 1988 audit plan, the committee receives

reports from the Office of Audits and Investigations and a wide variety of institutional programs and activities.

Related Organizations

The National Gallery of Art, the John F. Kennedy Center for Performing Arts and the Woodrow Wilson International Center for Scholars were established by Congress within the Institution. Each organization is administered by its own board of trustees and reports independently on its financial status. The Smithsonian provides the Woodrow Wilson International Center for Scholars fiscal, administrative, and other support services in addition to office space on a reimbursement basis. Administrative services are provided by the Institution on a contract basis for Reading is Fundamental. Office space continued to be provided for Visions Foundation, Inc., a nonprofit organization that publishes *American Visions* magazine. An independent nonprofit operation, the Friends of the National Zoo, operates under contract for the benefit of the National Zoological Park.

Smithsonian Institution Operating Funds

FISCAL YEARS 1985, 1986, 1987, 1988

(In \$1,000,000's)

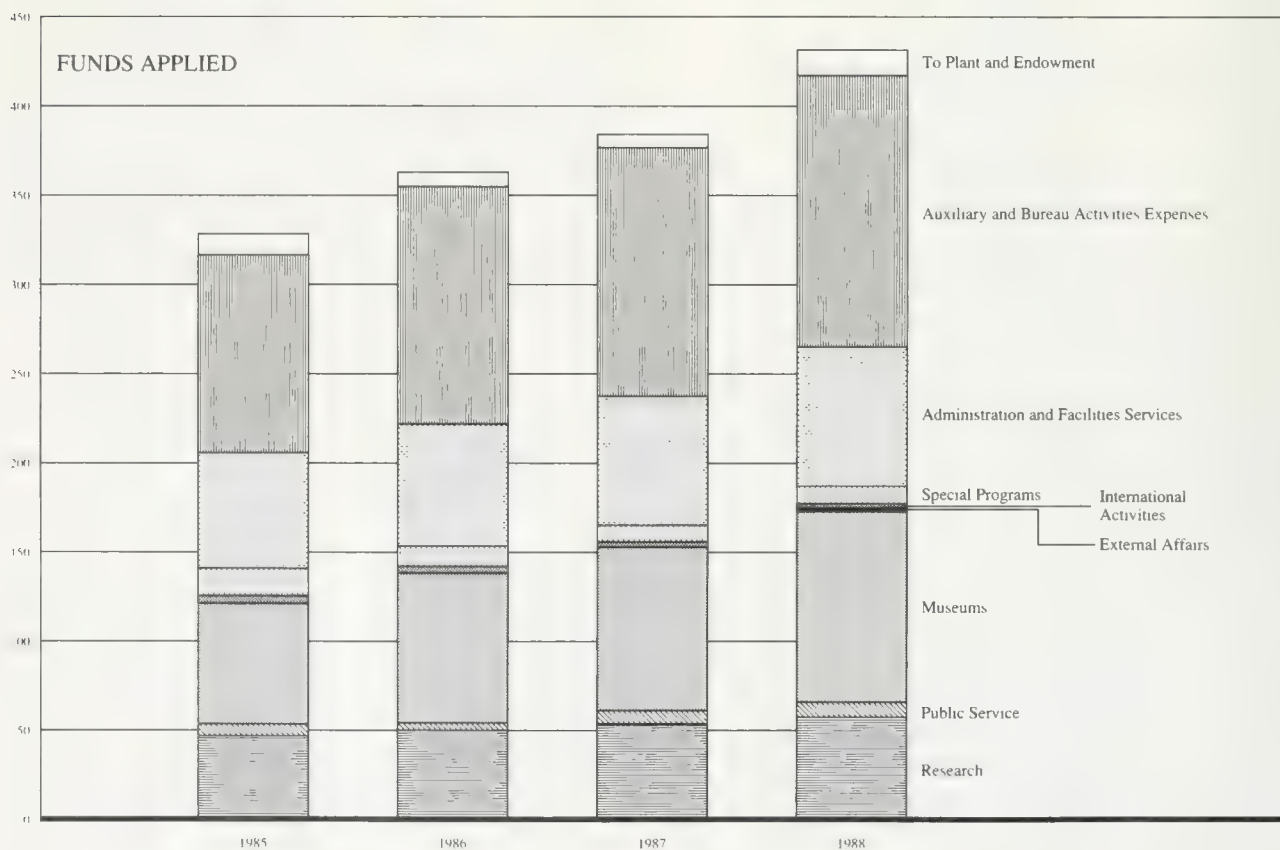
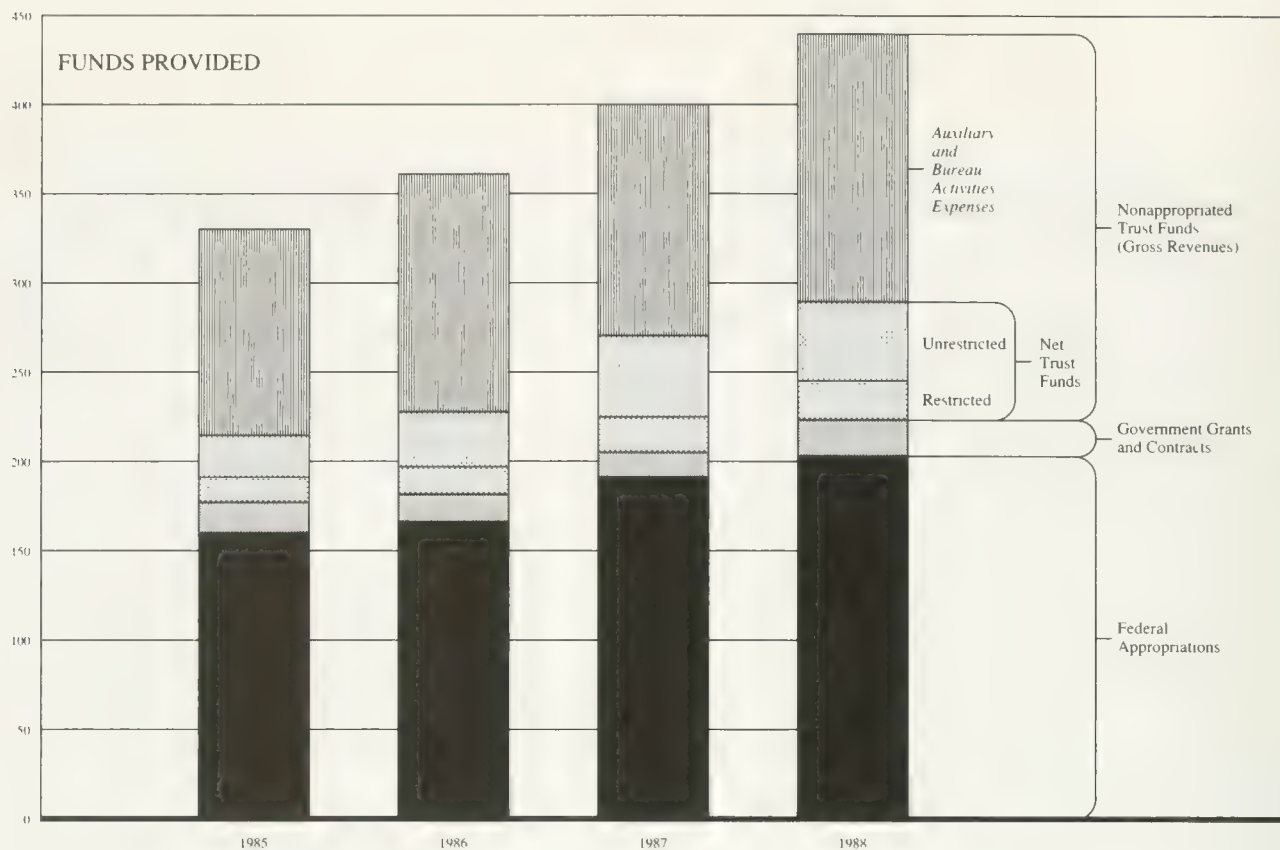


Table 1. Financial Summary (in \$1,000s)

	FY 1987	FY 1988
INSTITUTIONAL OPERATING FUNDS		
FUNDS PROVIDED:		
Federal Appropriations—Salaries & Expenses	\$ 188,974	\$ 201,432
Government Grants & Contracts	15,873	17,438
Nonappropriated Trust Funds:		
For Restricted Purposes	16,519	26,332
For Unrestricted & Special Purposes:		
Auxiliary & Bureau Activities Revenues—Gross	166,737	186,565
Less Related Expenses	(137,841)	(157,410)
Auxiliary & Bureau Activities Net Revenue	28,896	29,155
Investment, Gift & Other Income	12,601	12,255
Total Net Unrestricted & Special Purpose Revenue	41,497	41,410
Total Nonappropriated Trust Funds—Gross	195,857	225,152
—Net	58,016	67,742
Total Operating Funds Provided—Gross	400,704	444,022
—Net	262,863	286,612
FUNDS APPLIED:		
Research	56,452	60,960
Less SAO Overhead Recovery	(2,545)	(2,731)
Museums	95,632	104,285
Public Service	5,301	6,196
External Affairs	897	1,534
International Activities	1,427	1,217
Special Programs	11,642	11,635
Associates & Business Management	361	117
Administration—Federal*	15,112	16,258
Nonappropriated Trust Funds	9,889	12,361
Less Smithsonian Overhead Recovery	(8,558)	(9,695)
Facilities Services	57,271	60,651
Total Operating Funds Applied	242,881	262,788
Transfers (Nonappropriated Trust Funds)		
Unrestricted Funds—To Plant	(255)	178
—To Endowment	3,307	6,311
Restricted Funds—To Endowment	571	10,033
Total Operating Funds Applied & Transferred Out	246,504	279,310
CHANGES IN NONAPPROPRIATED TRUST FUND BALANCES:		
Restricted Purpose (Including Government Grants & Contracts)	4,113	2,807
Unrestricted—General Purpose	3,132	3,860
—Special Purpose	9,114	635
Total	\$ 16,359	\$ 7,302
YEAR-END BALANCES—NONAPPROPRIATED TRUST FUNDS:		
Restricted Purpose	\$ 13,769	\$ 16,576
Unrestricted—General Purpose	5,176	9,036
—Special Purpose	33,759	34,394
Total	\$ 52,704	\$ 60,006
OTHER FEDERAL APPROPRIATIONS**		
Canal Zone Biological Area Fund	\$ 141	\$ 143
Construction	21,570	28,719
Total Federal Appropriation (Including S & E above)	\$ 210,685	\$ 230,294

*Includes unobligated funds returned to Treasury: FY 1987—\$343 thousand; FY 1988—\$118 thousand.

* Excludes \$1,600 thousand received in FY 1987 and \$1,500 thousand received in FY 1988 from the Department of State for research projects in India.

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1988
(Excludes Canal Zone Biological Area Fund, Plant Funds and Endowments) (in \$1,000s)

	Federal Funds	Total Non- federal Funds	Nonfederal Funds				
			Unrestricted			Restricted	
			General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
FUND BALANCES—Beginning of Year	\$ —	\$ 52,704	\$ 5,176	\$ —	\$ 33,759	\$13,769	\$ —
FUNDS PROVIDED:							
Federal Appropriations	201,432	—	—	—	—	—	—
Investment Income	—	13,893	6,203	275	1,330	6,085	—
Government Grants and Contracts	—	17,438	—	—	—	—	17,438
Gifts	—	22,136	64	5,119	973	15,980	—
Sales and Membership Revenue	—	181,171	—	172,232	8,939	—	—
Other	—	7,952	2,021	—	1,664	4,267	—
Total Provided	201,432	242,590	8,288	177,626	12,906	26,332	17,438
Total Available	201,432	295,294	13,464	177,626	46,665	40,101	17,438
FUNDS APPLIED:							
<i>Research:</i>							
Assistant Secretary	1,179	612	215	—	64	45	288
Astrophysical Observatory	10,931	18,843	2,761	—	2,525	113	13,444
Less Overhead Recovery	—	(2,731)	(2,731)	—	—	—	—
Tropical Research Institute	5,395	1,674	202	—	608	208	656
Environmental Research Center	1,491	673	85	—	103	23	462
National Zoological Park	13,660	1,004	131	—	500	227	146
Smithsonian Archives	573	177	171	—	1	5	—
Smithsonian Libraries	5,343	461	360	—	101	—	—
Total Research	38,572	20,713	1,194	—	3,902	621	14,996
<i>Museums:</i>							
Assistant Secretary	562	207	192	—	11	4	—
Museum Programs	461	292	17	—	46	229	—
National Museum of Natural History/Museum of Man	24,375	5,734	221	—	1,923	2,320	1,270
National Air & Space Museum	9,308	5,239	194	—	3,836	901	308
National Museum of American History	14,044	4,010	200	—	1,502	2,223	85
National Museum of American Art	5,229	2,094	77	—	1,768	249	—
National Portrait Gallery	4,159	822	58	—	627	112	25
Hirshhorn Museum	3,443	1,750	16	—	875	859	—
Center for Asian Art	4,001	2,985	75	—	397	2,513	—
Archives of American Art	1,099	1,066	98	—	100	868	—
Cooper-Hewitt Museum	1,142	3,229	848	—	1,860	508	13
National Museum of African Art	3,456	593	112	—	261	220	—
Anacostia Neighborhood Museum	919	22	18	—	—	4	—
National Museum Act	—	—	—	—	—	—	—
Conservation Analytical Laboratory	2,533	152	—	—	97	44	11
Office of Exhibits Central	1,880	(102)	—	—	(102)	—	—
Traveling Exhibition Service	660	4,338	300	—	3,064	950	24
Total Museums	77,271	32,431	2,426	—	16,265	12,004	1,736

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1988
(Excludes Canal Zone Biological Area Fund, Plant Funds and Endowments) (in \$1,000s)

	Federal Funds	Total Non-federal Funds	Nonfederal Funds				
			Unrestricted			Restricted	
			General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
<i>Public Service:</i>							
Assistant Secretary	242	1,013	889	—	92	32	—
Telecommunications	217	1,079	526	—	114	388	51
Reception Center	174	876	869	—	5	2	—
Office of Public Affairs	628	598	536	—	62	—	—
Smithsonian Press	1,234	15,481	135	15,262	54	22	8
Total Public Service	2,495	19,047	2,955	15,262	327	444	59
<i>External Affairs:</i>							
Assistant Secretary	—	352	352	—	—	—	—
Development Office	—	1,016	926	—	75	15	—
Office of Special Events	—	166	166	—	—	—	—
Total External Affairs	—	1,534	1,444	—	75	15	—
International Activities	637	580	630	—	132	(234)	52
<i>Special Programs:</i>							
American Studies & Folklife Program	790	1,927	883	—	381	68	595
International Environmental Science Program ..	785	—	—	—	—	—	—
Academic & Educational Program	1,039	2,740	530	—	2,084	126	—
Museum Support Center	4,426	0	—	—	—	—	—
Total Special Programs	7,040	4,667	1,413	—	2,465	194	595
Associate Programs	—	88,426	(13)	88,326	68	45	—
Business Management	—	45,964	—	45,935	—	29	—
Administration	16,140	13,381	10,213	—	3,046	122	—
Less Overhead Recovery	—	(9,695)	(9,695)	—	—	—	—
Facilities Services	59,159	1,718	1,138	—	580	—	—
<i>Transfers Out/(In):</i>							
Treasury*	118	—	—	—	—	—	—
Programs**	—	—	8,043	—	(8,043)	—	—
Net Auxiliary Activities	—	—	(26,535)	26,535	—	—	—
Other Designated Purposes	—	0	6,085	1,568	(7,905)	252	—
Plant	—	178	—	—	178	—	—
Endowment	—	16,344	5,130	—	1,181	10,033	—
Total Transfers	118*	16,522	(7,277)	28,103	(14,589)	10,285	—
Total Funds Applied	201,432	235,288	4,428	117,626	12,271	23,525	17,438
FUND BALANCES—End of Year	\$ —	\$ 60,006	\$ 9,036	\$ —	\$ 34,394	\$16,576	\$ —

*Unobligated funds returned to Treasury.

**Includes Collection Acquisition, Scholarly Studies, Educational Outreach, and Special Exhibitions Programs.

Table 3. Government Grants and Contracts—Expenditures (in \$1,000s)
Fiscal Years 1987 and 1988

Government Agencies	FY 1987	FY 1988
Agency for International Development	\$ 426	\$ 465
Department of Commerce	15	24
Department of Defense	1,437	1,727
Department of Energy	731	509
Department of Health and Human Services	274	320
Department of Interior	616	984
National Aeronautics and Space Administration*	10,951	11,940
National Science Foundation**	666	562
Other	757	907
Total	<u>\$15,873</u>	<u>\$17,438</u>

*Includes \$274 thousand (FY 1987) and \$629 thousand (FY 1988) in subcontracts from other organizations receiving prime contract funding from NASA.

**Includes \$159 thousand (FY 1987) and \$106 thousand (FY 1988) in NSF subcontracts from the Chesapeake Research Consortium.

Table 4. Auxiliary Activities Fiscal Years 1987 and 1988 (in \$1,000s)

Activity	Sales and membership revenue	Gifts	Less cost of sales	Gross revenue	Expenses	Net revenue* (loss)
FY 1987	<u>\$153,057</u>	<u>\$4,477</u>	<u>\$87,820</u>	<u>\$69,714</u>	<u>\$42,928</u>	<u>\$26,786</u>
FY 1988:						
Associates	\$100,455	\$5,119	\$65,856	\$39,718	\$22,470	\$17,248
Business Management:*						
—Museum Shops/Mail Order	51,987	—	25,561	26,426	18,420	8,006
—Concessions	3,736	—	—	3,736	1,190	2,546
—Other	634	—	—	634	764	(130)
Smithsonian Press	15,695	—	4,240	11,455	11,022	433
Total FY 1988	<u>\$172,507</u>	<u>\$5,119</u>	<u>\$95,657</u>	<u>\$81,969</u>	<u>\$53,866</u>	<u>\$28,103</u>

*Before revenue-sharing transfers to participating Smithsonian bureaus of \$1,413 thousand (FY 1987) and \$1,568 thousand (FY 1988).

Table 5. Endowment and Similar Funds September 30, 1988 (in \$1,000s)

	Book Value	Market Value
ASSETS:		
<i>Pooled Consolidated Endowment Funds:</i>		
Cash and Equivalents	\$ 27,126	\$ 27,126
Interfund Receivable (Due From Current Funds)	1,463	1,463
U.S. Govt and Govt Obligations	22,346	22,873
Bonds	24,967	24,779
Convertible Bonds	6,998	7,426
Stocks	129,538	134,475
Total Pooled Funds	212,438	218,142
<i>Nonpooled Endowment Funds:</i>		
Loan to U.S. Treasury in Perpetuity	1,099	1,135
Notes Receivable	948	948
Land (Net of \$6,000 of expenses)	610	610
Investments in Charitable Trusts	514	526
Total Nonpooled Funds	3,171	3,219
Total Assets	\$215,609	\$221,361
LIABILITIES AND FUND BALANCES:		
LIABILITIES:		
Deferred Revenue—Charitable Trusts	\$ 514	\$ 526
Accrued Vouchers Payable	5	5
Total Liabilities	519	531
FUND BALANCES:		
Unrestricted Purpose: True Endowment	6,248	7,057
Quasi Endowment	94,809	94,376
Total Unrestricted Purpose	101,057	101,433
Restricted Purpose: True Endowment	77,161	81,713
Quasi Endowment	36,872	37,684
Total Restricted Purpose	114,033	119,397
Total Fund Balances	215,090	220,830
Total Liabilities and Fund Balances	\$215,609	\$221,361

Table 5A. Endowment and Similar Funds—Fund Balances at Market (in \$1,000s)

Fund	9/30/84	9/30/85	9/30/86	9/30/87	9/30/88
Unrestricted	\$ 57,744	\$ 66,543	\$ 83,209	\$108,925	\$101,433
Freer	31,125	34,066	39,570	50,380	44,228
Other Restricted	43,547	47,979	58,382	74,816	75,169
Total	<u>\$132,416</u>	<u>\$148,588</u>	<u>\$181,161</u>	<u>\$234,121</u>	<u>\$220,830</u>

Table 6. Changes in Pooled Consolidated Endowment Funds for Fiscal Year 1988 (in \$1,000s)

	Unrestricted	Restricted		Total
		Freer	Other	
Market Value—Beginning of Year	\$107,697	\$50,380	\$74,674	\$232,751
<i>Changes:</i>				
Gifts	0	0	383	383
Transfers of Excess Yield (net of below)				
Interest and Dividends*	4,078	1,850	2,913	8,841
Income Paid Out	(3,175)	(1,447)	(2,251)	(6,873)
Transfers of Other Income	5,369	0	7,688	13,057
Market Value Depreciation	(13,802)	(6,555)	(9,660)	(30,017)
Market Value—End of Year	<u>\$100,167</u>	<u>\$44,228</u>	<u>\$73,747</u>	<u>\$218,142</u>

*Income earned, less managers' fees of \$883 thousand.

Table 7. Endowment Funds September 30, 1988

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
UNRESTRICTED PURPOSE—TRUE:				
Avery Fund*	\$ 211,475	\$ 241,707	\$ 8,839	\$ 0
Higbee, Harry, Memorial	76,214	83,713	2,739	0
Hodgkins Fund*	319,062	331,614	18,562	0
Morrow, Dwight W.	377,855	436,787	14,290	0
Mussinán, Alfred	116,098	127,735	4,179	0
Olmsted, Helen A.	3,925	4,459	146	0
Poore, Lucy T. and George W.*	837,558	967,090	33,413	0
Porter, Henry Kirke, Memorial	1,396,620	1,612,895	52,769	0
Sanford, George H.*	5,803	6,493	2,992	0
Smithson, James*	720,607	730,334	57,182	0
Walcott, Charles D. and Mary Vaux, Research (Designated)	2,182,629	2,513,739	82,243	58,983
Subtotal	6,247,846	7,056,566	277,354	58,983
UNRESTRICTED PURPOSE—QUASI:				
Ettl, Charles H. Fund	801,076	788,211	8,604	0
Forrest, Robert Lee	5,072,331	4,860,603	159,025	0
General Endowment*	75,454,796	75,290,969	2,429,660	0
Goddard, Robert H.	40,150	38,493	1,259	0
Habel, Dr. S.*	665	674	55	0
Hart, Gustavus E.	2,689	2,881	94	0
Henry, Caroline	6,648	7,104	232	0
Henry, Joseph and Harriet A.	266,959	284,159	9,297	0
Heys, Maude C.	488,565	472,963	15,474	0
Hinton, Carrie Susan	134,352	138,357	4,527	0
Lambert, Paula C.	243,274	253,834	8,305	0
Medinus, Grace L.	4,844	4,708	154	0
Rhees, William Jones*	3,370	3,551	155	0
Safford, Clara Louise	224,563	220,916	7,228	0
Smithsonian Bequest Fund*	1,538,694	1,475,980	40,385	0
Taggart, Ganson	2,352	2,692	88	0
Abbott, William L. (Designated)	625,865	667,927	21,853	83,462
Barstow, Frederic D. (Designated)	5,237	5,582	183	7,130
Hirshhorn Museum Acquisition Fund (Designated)	3,520,269	3,444,020	108,364	77,691
Lindbergh Chair of Aerospace History (Designated)	2,338,378	2,313,326	75,686	113,462
Lindbergh, Charles A. (Designated)	38,341	37,245	1,218	10,729
Lyon, Marcus Ward, Jr. (Designated)	20,207	19,903	651	5,479
Smithsonian Agency Account (Designated)	30,752	28,681	922	0
Smithsonian Press Scholarly Books Fund (Designated)	1,522,234	1,621,088	35,358	36,332
Smithsonian Tropical Research Institute Endowment Fund (Designated)	1,329,418	1,415,750	30,880	31,730
Webb, James E., Fellowship (Designated)	1,092,864	975,807	31,926	94,344
Subtotal	94,808,893	94,375,424	2,991,583	460,359
Total Unrestricted Purpose	101,056,739	101,431,990	3,268,937	519,342

Table 7. Endowment Funds September 30, 1988 (continued)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
RESTRICTED PURPOSE—TRUE:				
Aiken, Annie Laurie, Endowment Fund	253,276	271,137	6,653	6,857
Arthur, James	188,117	218,773	7,158	16,558
Baird, Spencer Fullerton	169,655	195,560	6,398	6,390
Barney, Alice Pike, Memorial	134,841	156,774	5,129	39,684
Batchelor, Emma E.	160,534	162,165	5,306	107,591
Beauregard, Catherine, Memorial	205,435	219,077	7,168	72,090
Bergen, Charlotte V.	17,096	16,191	530	2,501
Brown, Roland W.	151,362	162,543	5,152	6,665
Canfield, Frederick A.	197,728	241,038	7,886	119
Casey, Thomas Lincoln	65,821	70,236	2,298	3,967
Chamberlain, Frances Lea	132,395	153,932	5,036	29,212
Cooper Fund for Paleobiology	147,539	142,276	4,572	75
Division of Mammals Curators Fund	9,564	9,919	323	5,260
Drake Foundation	861,980	882,505	28,743	165,015
Drouet, Francis and Louderback, Harold B. Fund	274,638	261,419	8,553	43,132
Dykes, Charles, Bequest	253,764	266,168	8,708	32,687
Eickmeyer, Florence Brevoort	51,091	59,394	1,943	11,471
Forbes, Edward Waldo	512,108	469,086	15,347	44,967
Freer, Charles L.	41,513,839	44,227,511	1,447,000	1,674,580
Grimm, Sergei N.	144,396	138,568	4,534	34,386
Groom, Barrick W.	147,451	139,487	4,564	20,069
Guggenheim, Daniel and Florence	570,513	565,897	18,515	75,886
Hamilton, James*	5,312	5,738	354	2,868
Henderson, Edward P., Meteorite Fund	114,356	97,771	3,199	2,761
Hewitt, Eleanor G., Repair Fund	34,762	35,579	1,164	506
Hewitt, Sarah Cooper	205,430	210,008	6,871	5,019
Hillyer, Virgil	34,516	36,832	1,205	17,019
Hitchcock, Albert S.	7,496	8,764	287	419
Hodgkins Fund*	133,003	134,810	11,059	16,200
Hrdlicka, Ales and Marie	252,172	272,363	8,911	14,131
Hughes, Bruce	90,060	104,753	3,427	13,989
Johnson, Seward, Trust Fund for Oceanography	17,205,701	18,394,876	601,829	308,513
Kellogg, Remington and Marguerite, Memorial	220,065	219,474	4,001	9,497
Kramar, Nada	13,694	14,319	468	5,504
Maxwell, Mary E.	92,279	107,328	3,512	47,688
Milliken, H. Oothout, Memorial	1,024	1,046	34	149
Mineral Endowment	468,358	483,031	15,790	2,034
Mitchell, William A.	63,753	65,939	2,157	178
Nelms, Henning, Endowment Fund	211,211	182,835	5,770	6,492
Nelson, Edward William	107,104	121,540	3,976	2,803
Petrocelli, Joseph, Memorial	34,958	40,711	1,332	19,229
Reid, Addison T.*	107,993	114,435	4,475	5,819
Ripley, S. Dillon and Mary Livingston	146,435	145,465	4,639	0
Roebbing Fund	565,803	656,555	21,481	1,093
Rollins, Miriam and William	1,136,839	1,233,111	39,977	17,128
Sims, George W.	106,872	100,375	3,284	3,836
Sprague Fund	7,220,812	7,372,182	239,030	130,031
Springer, Frank	84,558	97,973	3,205	32,721
Stern, Harold P., Memorial	900,191	913,743	29,630	169,581
Stevenson, John A., Mycological Library	25,176	26,767	876	3,337
Stuart, Mary Horner	371,276	340,086	11,127	496

Table 7. Endowment Funds September 30, 1988 *(continued)*

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Walcott, Charles D. and Mary Vaux, Research	737,808	788,470	25,504	21,346
Walcott Research Fund, Botanical Publications	273,517	331,379	10,842	13,866
Williston, Samuel Wendell, Diptera Research	20,509	20,189	631	4,187
Zerbee, Frances Brinckle	4,443	5,152	169	6,827
Subtotal	77,160,629	81,713,255	2,671,732	3,284,429
RESTRICTED PURPOSE—QUASI:				
Armstrong, Edwin James	17,637	17,745	570	0
Au Panier Fleuri	94,386	90,655	2,966	1,889
Bacon, Virginia Purdy	446,127	455,004	14,886	66,661
Becker, George F.	769,832	787,526	25,766	23,538
Desautels, Paul E.	54,824	58,530	1,902	491
Gaver, Gordon	6,117	6,404	209	4,628
Hachenberg, George P. and Caroline	21,950	23,938	783	5,025
Hanson, Martin Gustav and Caroline R.	46,666	49,787	1,629	11,929
Hirshhorn Collections Endowment Fund	3,776,090	3,446,350	89,027	72,325
Hirshhorn, Joseph H., Bequest Fund	2,769,492	2,745,505	15,997	16,246
The Holenia Trust Fund	5,028,176	5,105,951	69,605	70,826
Hunterdon Endowment	15,498,024	16,359,505	535,237	277,583
ICBP Endowment	965,710	940,915	30,497	33,952
ICBP Conservation Endowment	208,697	201,350	6,546	10,631
Johnson, E. R. Fenimore	37,528	36,863	1,206	6,900
Loeb, Morris	461,162	493,778	16,155	64,445
Long, Annette E. and Edith C.	2,599	3,050	100	740
Myer, Catherine Walden	106,068	113,167	5,000	23,886
Noyes, Frank B.	5,251	5,704	187	3,994
Noyes, Pauline Riggs	44,458	42,718	1,398	3,165
Pell, Cornelia Livingston	39,081	41,778	1,367	7,884
Ramsey, Adm. and Mrs. Dewitt Clinton*	898,868	967,334	31,977	105,037
Rathbun, Richard, Memorial	56,021	59,860	1,958	22,432
Roebbing Solar Research	124,067	128,701	11,021	5,586
Ruef, Bertha M.	146,296	143,655	4,700	0
Schultz, Leonard P.	58,956	60,270	1,972	39,901
Seidell, Atherton	3,049,554	3,111,373	101,795	428,328
Smithsonian Agency Account	1,409,297	1,408,128	47,344	(2,791)
Strong, Julia D.	52,648	56,249	1,840	7,032
Witherspoon, Thomas A., Memorial	676,788	721,750	23,614	110,574
Subtotal	36,872,370	37,683,543	1,047,254	1,422,837
Total Restricted Purpose	114,032,999	119,396,798	3,718,986	4,707,266
TOTAL ENDOWMENT FUNDS	\$215,089,738	\$220,828,788	\$6,987,923**	\$5,226,608

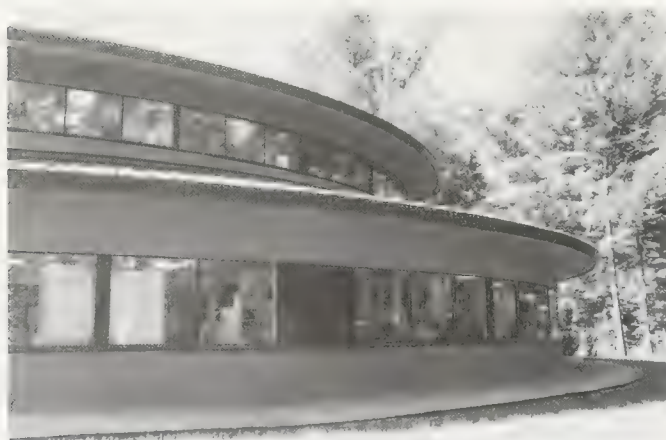
* Invested all or in part in U.S. Treasury or other nonpooled investments.

** Total Return Income Payout; does not include \$326,840 of interest income which is included in unexpended balances.

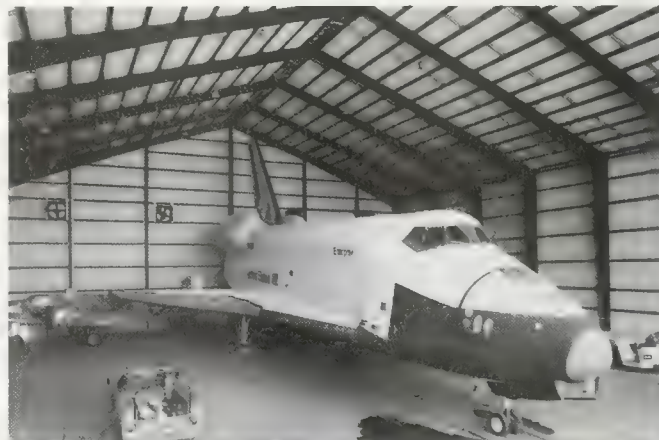
Table 8. Construction and Plant Funds
Fiscal Years 1987 and 1988 (in \$1,000s)

	FY 1987	FY 1988
FUNDS PROVIDED		
<i>Federal Appropriations:</i>		
National Zoological Park	\$ 2,500	\$ 8,150
Restoration and Renovation of Buildings	12,975	19,254
Quadrangle	3,315	—
Tropical Research Institute—Tupper Research Facilities	2,780	—
Astrophysical Observatory—Whipple Base Camp	—	1,315
Total Federal Appropriations	<u>21,570</u>	<u>28,719</u>
<i>Nonappropriated Trust Funds:</i>		
<i>Income-Gift and Other</i>		
Environmental Research Center—Land Acquisitions	4	240
Tropical Research Institute—Tupper Research Facilities	2,725	763
Cooper-Hewitt Museum	410	286
Quadrangle and Related	643	322
Visitor Information and Reception Center	1,557	692
National Air and Space Museum—Dulles Shelter	16	69
Other	12	100
Total Income	<u>5,367</u>	<u>2,472</u>
<i>Transfers from Other Funds:</i>		
Environmental Research Center—Land Acquisitions	—	178
Visitor Information and Reception Center	(255)*	—
National Air and Space Museum—Dulles Shelter	415	—
Total Transfers	<u>160</u>	<u>178</u>
Total Funds Provided	<u>\$27,097</u>	<u>\$31,369</u>

*Funds transferred to Current Funds to cover fund raising expenses.



National Zoological Park Veterinary Hospital.



Shelter at Dulles International Airport for the Space Shuttle Enterprise.

Coopers & Lybrand
Certified Public Accounts

Report of Independent Accountants

To the Board of Regents
Smithsonian Institution

We have audited the accompanying statement of financial condition of the Smithsonian Institution as of September 30, 1988, and the related statement of financial activity for the year then ended. These financial statements are the responsibility of the Institution's management. Our responsibility is to express an opinion on these financial statements based on our audit. We previously audited and reported upon the financial statements of the Smithsonian Institution for the year ended September 30, 1987, totals of which are included in the accompanying financial statements for comparative purposes only.

We conducted our audit in accordance with generally accepted auditing standards and generally accepted governmental auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Smithsonian Institution as of September 30, 1988, and the results of its operations and changes in its fund balances for the year then ended, in conformity with generally accepted accounting principles.

A stylized, handwritten signature in dark ink that reads "Coopers & Lybrand". The script is fluid and cursive, with the ampersand being particularly prominent.

Coopers & Lybrand
Washington, D.C.
December 16, 1988

Smithsonian Institution Statement of Financial Condition, September 30, 1988
(with comparative totals for September 30, 1987) (thousands of dollars)

	Trust funds	Federal funds	Totals, all funds	Totals, 1987
ASSETS:				
Fund balances with U.S. Treasury and cash on hand	\$ 1,521	\$ 97,343	\$ 98,864	\$ 86,572
Investments (Notes 1 and 3)	282,010	—	282,010	278,201
Receivables (Note 5)	36,479	8,681	45,160	43,599
Advance payments (Note 6)	335	21,267	21,602	18,701
Merchandise inventory (Note 1)	12,037	—	12,037	12,001
Materials and supplies inventory (Note 1)	—	1,405	1,405	1,412
Prepaid, deferred expense and other (Note 1)	16,105	—	16,105	13,911
Property and equipment (Notes 1 and 7)	72,499	225,612	298,111	277,823
Total assets	<u>\$420,986</u>	<u>\$354,308</u>	<u>\$775,294</u>	<u>\$732,220</u>
LIABILITIES:				
Accounts payable and accrued expenses, including interfund payable of \$14,049,000	\$ 31,992	\$ 20,528	\$ 52,520	\$ 50,005
Deposits held in custody for other organizations (Note 2)	4,371	5	4,376	4,436
Accrued annual leave (Note 1)	2,315	8,544	10,859	10,381
Deferred revenue (Note 1)	35,713	—	35,713	33,625
Long-term debt (Note 8)	12,062	—	12,062	13,812
Total liabilities	<u>86,453</u>	<u>29,077</u>	<u>115,530</u>	<u>112,259</u>
Undelivered orders (Note 1)	—	76,198	76,198	67,277
FUND BALANCES (Note 1):				
Trust Funds:				
Current:				
Unrestricted general purpose	9,036	—	9,036	5,176
Special purpose	34,394	—	34,394	33,759
Restricted	16,576	—	16,576	13,769
Endowment and similar funds (Note 4)	215,090	—	215,090	201,111
Plant funds (Note 7)	59,437	—	59,437	58,892
Total trust fund balances	<u>334,533</u>	<u>—</u>	<u>334,533</u>	<u>312,707</u>
Federal Funds:				
Operating funds—restricted (Note 9)	—	335	335	388
Construction funds	—	21,681	21,681	16,547
Capital funds	—	227,017	227,017	223,042
Total federal fund balances	<u>—</u>	<u>249,033</u>	<u>249,033</u>	<u>239,977</u>
Total fund balances	<u>334,533</u>	<u>249,033</u>	<u>583,566</u>	<u>552,684</u>
Total liabilities, undeliveredd orders and fund balances	<u>\$420,986</u>	<u>\$354,308</u>	<u>\$775,294</u>	<u>\$732,220</u>

The accompanying notes are an integral part of these financial statements.

Smithsonian Institution Statement of Financial Activity for the year ended September 30, 1988
(with comparative totals for the year ended September 30, 1987) (thousands of dollars)

	Trust funds				
	Totals, trust funds	Current funds	Endowment and similar funds	Plant funds	Totals, federal funds
REVENUE AND OTHER ADDITIONS:					
Appropriations	\$ —	\$ —	\$ —	\$ —	\$230,151
Auxiliary activities revenue	181,171	181,171	—	—	—
Government grants and contracts	17,438	17,438	—	—	—
Investment income	15,049	13,893	—	1,156	—
Net gain (loss) on sale of securities . . .	(2,539)	(4)	(2,748)	213	—
Gifts, bequests and foundation grants	23,622	22,136	383	1,103	—
Additions to plant	4,048	—	—	4,048	27,299
Rentals, fees, commissions and other	7,956	7,956	—	—	1,792
Total revenue and other additions	246,745	242,590	(2,365)	6,520	259,242
EXPENDITURES AND OTHER DEDUCTIONS:					
Research, educational, and collection acquisition (Note 10)	51,191	51,191	—	—	127,847
Administrative	15,636	15,636	—	—	16,153
Facilities services	1,713	1,713	—	—	59,159
Auxiliary activities	150,226	150,226	—	—	—
Acquisition of plant	4,185	—	—	4,185	23,585
Property use and retirements (Note 7)	1,968	—	—	1,968	23,324
Total expenditures and other deductions	224,919	218,766	—	6,153	250,068
Excess of revenue and other additions over (under) expenditures and other deductions . .	21,826	23,824	(2,365)	367	9,174
TRANSFERS AMONG FUNDS— ADDITIONS (DEDUCTIONS) (Note 11)					
	—	(16,522)	16,344	178	—
Net increase for the year . .	21,826	7,302	13,979	545	9,174
Returned to U.S. Treasury	—	—	—	—	(118)
Fund balances at beginning of year . . .	312,707	52,704	201,111	58,892	239,977
Fund balances at end of year (Note 9) .	\$334,533	\$ 60,006	\$215,090	\$59,437	\$249,033

The accompanying notes are an integral part of these financial statements.

Federal funds			Totals, all funds	Totals, 1987
Operating funds	Construction funds	Capital funds		
\$201,432	\$28,719	\$ —	\$230,151	\$210,544
—	—	—	181,171	161,740
—	—	—	17,438	15,873
—	—	—	15,049	12,491
—	—	—	(2,539)	35,315
—	—	—	23,622	19,330
—	—	27,299	31,347	35,925
<u>1,792</u>	<u>—</u>	<u>—</u>	<u>9,748</u>	<u>9,728</u>
<u>203,224</u>	<u>28,719</u>	<u>27,299</u>	<u>505,987</u>	<u>500,946</u>
127,847	—	—	179,038	166,777
16,153	—	—	31,789	28,667
59,159	—	—	60,872	57,500
—	—	—	150,226	131,093
—	23,585	—	27,770	27,531
<u>—</u>	<u>—</u>	<u>23,324</u>	<u>25,292</u>	<u>20,069</u>
<u>203,159</u>	<u>23,585</u>	<u>23,324</u>	<u>474,987</u>	<u>431,637</u>
<u>65</u>	<u>5,134</u>	<u>3,975</u>	<u>31,000</u>	<u>69,309</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
65	5,134	3,975	31,000	69,309
(118)	—	—	(118)	(343)
<u>388</u>	<u>16,547</u>	<u>223,042</u>	<u>552,684</u>	<u>483,718</u>
<u>\$ 335</u>	<u>\$21,681</u>	<u>\$227,017</u>	<u>\$583,566</u>	<u>\$552,684</u>

Smithsonian Institution Notes to Financial Statements

1. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts or the Woodrow Wilson International Center for Scholars, which were established by Congress within the Smithsonian Institution (the Institution) but are administered under separate boards of trustees.

The financial statements of the Institution with respect to Federal Appropriations have been prepared on the obligation basis of accounting, which is in accordance with accounting principles prescribed by the Comptroller General of the United States as set forth in the *Policy and Procedures Manual for Guidance of Federal Agencies*. The obligation basis of accounting differs in some respects from generally accepted accounting principles. Under this method of accounting, approximately \$54,484,000 of commitments of the operating fund, such as purchase orders and contracts, have been recognized as expenditures, and the related obligations have been reported on the Statement of Financial Condition at September 30, 1988 even though the goods and services have not been received. Approximately \$11,988,000 of these commitments are for grants under the foreign currency program. Approximately \$17,558,000 of these commitments are for internal storage facilities and equipment at the Museum Support Center. In addition, construction fund commitments for other projects amounted to approximately \$21,714,000 at September 30, 1988.

The trust funds reflect the receipt and expenditure of funds obtained from private sources, federal grants and contracts, investment income, and certain business activities related to the operations of the Institution.

Fund Accounting

To ensure observance of the limitations and restrictions placed on the use of resources available to the Institution, accounts are maintained in accordance with the principles of fund accounting. This procedure classifies resources for control, accounting and reporting purposes into distinct funds established according to their appropriation, nature and purposes. Funds that have similar characteristics have been combined into fund groups in the accompanying financial statements. Accordingly, all financial transactions have been recorded and reported by fund group.

The assets, liabilities, and fund balances of the Institution are self-balancing as follows:

Federal operating funds represent the portion of expendable funds available for support of Institution operations.

Federal construction funds represent that portion of expendable funds available for building and facility construction, restoration, renovation and repair. Separate subfund groups are maintained for each appropriation—Construction and Improvements, National Zoological Park, Restoration and Renovation of Buildings, Museum Support Center, and the Center for African, Near Eastern, and Asian Cultures (Quadrangle).

Federal capital funds represent the value of those assets of the Institution acquired with federal funds and nonexpendable property transfers from government agencies.

Trust current funds, which include unrestricted and restricted resources, represent the portion of expendable funds that is available for support of Institution operations. Amounts restricted by the donor for specific purposes are segregated from other current funds.

Trust endowment and similar funds include funds that are subject to restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be used. Also classified as endowment and similar funds are gifts which allow the expenditure of principal but only under certain specified conditions. Quasi-endowment funds are funds established by the governing board for the same purposes as endowment funds; however, any portion of such funds may be expended. Restricted quasi-endowment funds represent gifts for restricted purposes where there is no stipulation that the principal be maintained in perpetuity or for a period of time, but the governing board has elected to invest the principal and expend only the income for the purpose stipulated by the donor.

Trust plant funds represent resources restricted for future plant acquisitions and funds expended for plant.

Investments

All investment income, except that of endowment and similar funds, and gains and losses arising from the sale of investments and property, are accounted for in the fund in which the related assets are recorded. Income of endowment and similar funds is accounted for in the

fund to which it is restricted or, if unrestricted, as revenue in unrestricted current funds. Gains and losses on the sale of investments are recognized on the trade date basis using the average cost method.

Inventory

Inventories are carried at the lower of cost or market. Cost is determined using the first-in, first-out (FIFO) method or retail cost method (for those inventories held for resale).

Deferred Revenue and Expense

Revenue from subscriptions to *Smithsonian Magazine* and *Air and Space Magazine* is recorded as income over the period of the related subscription, which is generally one year. Costs related to obtaining subscriptions to *Smithsonian Magazine* and *Air and Space Magazine* are charged against income over the period of the subscription.

The Institution recognizes revenue and charges expenses of other auxiliary activities during the period in which the activity is conducted.

Works of Art, Living or Other Specimens

The Institution acquires its collections, which include works of art, library books, photographic archives, objects and specimens, through purchase by federal or private funds or by donation. In accordance with policies generally followed by museums, no value is assigned to the collections on the statement of financial condition. Purchases for the collections are expensed currently.

Property and Equipment—Trust Funds

Property and equipment purchased with trust funds for use by nonincome-producing activities are recorded at cost, or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay and the Carnegie Mansion, which have been recorded at nominal values. Property and equipment are treated as a deduction of the current fund and as a capitalized cost of the plant fund.

Property and equipment for use by nonincome-producing activities is depreciated on the straight-line basis over their useful lives as follows:

Building	30 years
Major renovations	15 years
Equipment	10 years

Depreciation is recorded in the plant fund as a deduction to the investment in plant (see Note 7).

Capital improvements and equipment purchased with trust funds and utilized in income-producing activities are capitalized at cost and are depreciated on a straight-line basis over their estimated useful lives of 3 to 10 years.

Property and Equipment—Federal Funds

Property and equipment purchased with federal funds are recorded in the capital funds at cost and depreciated on a straight-line basis over their useful lives as follows:

Building	30 years
Major renovations	15 years
Nonexpendable equipment	10 years

Certain lands occupied by the Institution’s buildings were appropriated and reserved by Congress for the Smithsonian and are not reflected in the accompanying financial statements. Property and nonexpendable equipment acquired through transfer from government agencies are capitalized at the transfer price or at estimated amounts, taking into consideration usefulness, condition and market value.

Government Grants and Contracts

The Institution has a number of grants and contracts with the U.S. Government, which primarily provide for cost reimbursement to the Institution. Grant and contract revenue is recognized within trust funds as expenditures are incurred.

Pledges and Donations

The Institution records significant pledges that are supported by letters signed by donors. Pledges are recorded at net realizable value as a receivable and as deferred revenue on the statement of financial condition. Revenue from pledges is recognized in the year the pledge funds are collected.

Donations are recognized as revenue in the year the cash is received.

Contributed Services

A substantial number of unpaid volunteers have made significant contributions of their time in the furtherance of the Institution's programs. The value of this contributed time is not reflected in these statements in accordance with generally accepted accounting principles.

Annual Leave

The Institution's civil service employees earn annual leave in accordance with federal law and regulations. However, only the cost of leave taken as salaries is funded and recorded as an expense. The cost of unused annual leave at year-end is reflected in the accompanying financial statements as an asset and accrued liability in the federal funds.

Annual leave is recorded for trust employees in the trust fund as earned.

2. Related Activities

The Institution provides fiscal and administrative services to several separately incorporated organizations in which certain officials of the Institution serve on the governing boards. The amounts paid to the Institution by these organizations for the aforementioned services, together with rent for Institution facilities occupied, totaled \$380,000 (\$305,000 for the trust funds and \$75,000 for the federal funds) for the year ended September 30, 1988. Deposits held in custody for these organizations are \$4,371,000 as of September 30, 1988.

The following summarizes the unaudited expenditures of these organizations for the fiscal year ended September 30, 1988 as reflected in their individual financial statements, which are not included in the accompanying financial statements of the Institution:

Reading Is Fundamental, Inc.	\$7,971,000
Woodrow Wilson International Center for Scholars:	
Trust funds	\$5,321,000
Federal appropriations	\$4,028,000

3. Investments

Investments are recorded at cost on a trade date basis, if purchased, or estimated fair market value at date of acquisition, if acquired by gift. At September 30, 1988, investments were composed of the following:

	Carrying value (\$000s)	Market value (\$000s)
Current funds:		
Short-term investments	\$ 69,270	\$ 68,898
Endowment and similar funds:		
Short-term cash equivalents	27,126	27,126
Deposit with U.S. Treasury	1,099	1,135
U.S. Government and quasi-government obligations	22,346	22,873
Corporate bonds and other obligations	31,965	32,206
Common and preferred stock	129,538	134,474
Charitable trusts	514	526
	<u>212,588</u>	<u>218,340</u>
Plant funds:		
U.S. Government and quasi-government obligations	27	27
Common stock	125	125
	<u>152</u>	<u>152</u>
Total investments	<u>\$282,010</u>	<u>\$287,390</u>

Since October 1, 1982, the deposit with the U.S. Treasury has been invested in U.S. Government securities at a variable yield based on market rates.

Substantially all the investments of the endowment and similar funds are pooled on a market value basis (consolidated fund) with each individual fund subscribing to or disposing of units on the basis of the per unit market value at the beginning of the month within which the transaction takes place. As of September 30, 1988, 303,177 units were owned by endowment funds, and 449,669 units were owned by quasi-endowment funds.

The following tabulation summarizes changes in relationships between cost and market values of the pooled investments:

	(\$000s)		
	Market	Cost	Net change
End of year	\$218,142	\$212,439	\$ 5,703
Beginning of year	\$232,751	\$199,778	32,973
Decrease in unrealized net gain for the year			(27,270)
Realized net loss for the year			(2,748)
Net Change			<u>\$(30,018)</u>

4. Endowment and Similar Funds

The Institution utilizes the “total return” approach to investment management of endowment funds and quasi-endowment funds. Under this approach, an amount equal to the difference between actual interest and dividends earned during the year and the amount computed under the total return formula is transferred to or from the current funds.

In applying this approach, it is the Institution’s policy to provide, as being available for current expenditures, an amount taking into consideration such factors as, but not limited to: (1) 4½% of the five-year average of the market value of each fund (adjusted for gifts and transfers during this period), (2) current dividend and interest yield, (3) support needs for bureaus and scientists, and (4) inflationary factors as measured by the Consumer Price Index. However, where the market value of the assets of any endowment fund is less than 110% of the historic dollar value (value of gifts at date of donation), the amount provided is limited to only interest and dividends received.

The total return factor for 1988 was 5% to all participating funds. Actual dividends and interest earned exceeded the total return for the year, and the amount was transferred from the current funds to the endowment funds (see Note 11).

5. Receivables

Receivables at September 30, 1988 included the following:

	(\$000s)
<i>Federal funds</i>	
Amount to be provided for accrued annual leave	\$ 8,544
Service fees and charges	137
	<u>8,681</u>
<i>Trust funds</i>	
Accounts receivable, auxiliary activities, net	14,945
Interfund receivables due from current funds:	
Endowment and similar funds	1,456
Plant funds	12,593
Interest and dividends receivable	2,997
Billed and unbilled costs and fees from grants and contracts	3,440
Other	1,048
	<u>36,479</u>
Total, all funds	<u>\$45,160</u>

6. Advance payments

Advance payments represent prepayments made to government agencies, educational institutions, firms and individuals for services to be rendered, or property or materials to be furnished.

As of September 30, 1988, the Institution had advances outstanding to the General Services Administration of approximately \$17,800,000, principally for construction services including the Museum Support Center and other projects to be completed in future fiscal years. The Institution at that date also had advances outstanding to educational institutions amounting to approximately \$3,019,000, principally under the Special Foreign Currency Program.

7. Property and Equipment

At September 30, 1988, property and equipment were comprised of the following:

	(\$000s)	(\$000s)
<i>Federal</i>		
<i>Capital funds</i>		
Property	\$346,753	
Equipment	41,815	
Less accumulated depreciation	(162,956)	
Total, federal funds		<u>\$225,612</u>
<i>Trust</i>		
<i>Current funds</i>		
Capital improvements	23,386	
Equipment	8,899	
Leasehold improvements	1,522	
Less accumulated depreciation and amortization	(9,172)	
	<u>24,635</u>	
<i>Endowment and similar funds</i>		
Land	616	
<i>Plant funds</i>		
Land and buildings	52,700	
Equipment	5,378	
Less accumulated depreciation	(10,830)	
	<u>47,248</u>	
Total, trust funds		<u>\$ 72,499</u>
Total, all funds		<u>\$298,111</u>

Included in the accumulated depreciation of the federal capital funds is \$18,380,000 of depreciation expense for 1988.

Depreciation and amortization expense in the trust funds for fiscal year 1988 for income-producing assets

amounted to \$2,039,000 which is included in auxiliary activities expenditures in the current funds. Depreciation of nonincome-producing equipment and buildings for 1988 amounted to \$1,967,000 and is included in the plant fund.

The balance of the plant fund at September 30, 1988 included \$12,190,000 of unexpended funds for future plant acquisitions.

8. Long-term Debt

Long-term debt as of September 30, 1988 consists of the following:

	(\$000s)
9% note payable to Riggs National Bank, interest only payable quarterly commencing December 31, 1986, interest and principal payable quarterly commencing September 30, 1991 and ending on June 30, 1998	\$11,000
Noninterest-bearing note payable for the purchase of art, due in four annual installments commencing January 9, 1986 and ending January 10, 1989, collateralized by purchased art	500
Noninterest-bearing note payable for purchase of food service equipment, due monthly commencing September 18, 1987 through July 21, 1990	262
9% note payable for purchase of Folkways Records and Service Corporation, due in four annual installments commencing December 31, 1987	300
	<u>\$12,062</u>

The aggregate amount of maturities for all borrowings for the years ending September 30, are as follows: \$750,000 in 1989; \$212,000 in 1990; \$386,000 in 1991; \$1,211,000 in 1992; \$1,324,000 in 1993; and \$8,179,000 in years thereafter.

The proceeds of the note with Riggs National Bank were used to fund construction of a restaurant addition to the National Air and Space Museum. Interest on the note was approximately \$990,000 for fiscal year 1988 of which \$165,000 was recorded as interest expense of the Auxiliary Activities funds and \$825,000 was capitalized as a cost of the restaurant.

9. Federal Operating Funds

The federal operating funds include appropriations for salaries and expenses which are expended in the year received. Also included are amounts received with the provision that such amounts can be expended over a period greater than one year.

The federal operating funds for the year ended September 30, 1988 included the following:

	(\$000s)		Fund Balance at Sept. 30, 1988
	Appropriations	Other	
Salaries and expenses	\$201,432	\$ —	\$ —
Special Foreign Currency Program	—	—	143
U.S. India Fund (transfers from Department of State)	—	1,651	101
Smithsonian Tropical Research Institute	—	141	91
	<u>\$201,432</u>	<u>\$1,792</u>	<u>\$335</u>

10. Collection Acquisitions

In keeping with generally accepted accounting principles, the Institution records the acquisition of collections as an expense in the year of purchase. For fiscal year 1988, \$4,893,000 was expensed to trust funds and \$1,384,000 to federal funds for the acquisition of collections.

11. Transfers among Funds

The following transfers increased (decreased) respective fund balances for the year ended September 30, 1988:

	(\$000s)			
	Current funds		Endowment and similar funds	Plant funds
	Unrestricted	Restricted		
Portion of investment yield appropriated	\$ (942)	\$(1,070)	\$2,012	\$ —
Income added to endowment principal	(1)	(201)	202	—
For plant acquisitions	(178)			178
For special purposes	252	(252)	—	—
Endowment released	3	132	(135)	—
Appropriated as quasi-endowment	(5,371)	(8,894)	14,265	—
Total transfers among funds	<u>\$(6,237)</u>	<u>\$(10,285)</u>	<u>\$16,344</u>	<u>\$178</u>

12. Retirement Plans

The federal employees of the Institution are covered by either the Civil Service Retirement System (CSRS) or the Federal Employee Retirement System (FERS). The features of both of these systems are defined in published government documents. Under both systems, the Institution withholds from the salary of each federal employee the percentage of salary specified by each program, and the Institution contributes specified percentages. The cost of the programs for the year ended September 30, 1988 was \$8,267,000.

The Institution has a separate retirement plan for trust employees. Under the plan, both the Institution and the employees contribute stipulated percentages of salary which are used to purchase individual annuities, the rights to which are immediately vested with the employees. The cost of the plan for the year ended September 30, 1988 was \$4,480,000.

It is the policy of the Institution to fund the accrued costs of the plans currently. There are no unfunded prior service costs under the plans.

13. Income Taxes

The Institution is exempt from income taxation under the provisions of Section 501(c)(3) of the Internal Revenue Code. Organizations described in that section are taxable only on their unrelated business income. No provision for income taxes is required for the year ended September 30, 1988 since the Institution had a net loss from unrelated business activity.

It is the opinion of the Institution that it is also exempt from taxation as an instrumentality of the United States as defined in Section 501(c)(1) of the Code. Organizations described in that section are exempt from all income taxation. The Institution has not as yet formally sought such dual status.

RESEARCH

Robert Hoffmann, Assistant Secretary for Research

International Center

Since the creation of the Smithsonian's first international office twenty years ago, international affairs affecting the conduct of the Institution's work abroad have become ever more complex, and the scope of Smithsonian international activities has continued to expand. The establishment of the Smithsonian's International Center in 1983 and the opening of the Smithsonian's new museum and education complex in 1987 provided a new focus for the global interests of Smithsonian scholars and their collaborators around the world.

Through its constituent divisions, the International Center fosters the international dimension of basic research, museum programs, and exchanges in scientific and cultural fields. Major emphasis is placed on efforts to broaden the American public's understanding of the history, culture, and natural environment of regions throughout the world. In the International Center's first year of operation in its new facilities, it introduced the public and the scholarly community to the types of programs that will be mounted there. In the future, center staff will provide support for the increasing number of program initiatives from other Smithsonian bureaus and from outside organizations.

The International Center grew out of the Directorate of International Activities, which was established in 1984 to administer and outline prototype programs for the center and assist in establishing contacts for research collaboration and cooperative institutional relationships. Under the directorate's purview were the International Gallery, the Office of Service and Protocol, the Smithsonian Foreign Currency Program, the Office of Publications Exchange, and the Office of Quincentenary Programs. The directorate also provided a base for the Smithsonian-Man and the Biosphere Program, the affiliated organizations of the Council of American Overseas Research Centers (CAORC), and, more recently, the International Union for the Conservation of Nature and Natural Resources (IUCN).

In early 1988 a newly established International Activities Council (IAC) assumed responsibility for administration of the International Center. The council is composed of the Smithsonian assistant secretaries for research, museums, public service, and external affairs, each of whom has responsibility for a portion of the International Center's activities. The council as a whole provides consolidated oversight for the Institution's international policies. A coordinator and an administrative officer maintain budgetary oversight for the units of the center, while the directors of the component offices manage their programs with reference to the appropriate assistant secretary. The

assistant secretary for research has responsibility for the Office of Quincentenary Programs, the Man and the Biosphere Program, Smithsonian research exchange programs, and coordination with CAORC and IUCN. The International Gallery is under the purview of the assistant secretary for museums. The assistant secretary for public service is responsible for a new Office of Conference Services that serves the burgeoning needs of Smithsonian bureaus for logistical assistance in planning scholarly gatherings. The assistant secretary for external affairs oversees the Office of International Relations, made up of what were the Office of Service and Protocol and the Smithsonian Foreign Currency Program. The Office of Publications Exchange was transferred to the Smithsonian Institution Libraries.

Office of International Relations

The Office of International Relations (OIR) provides support for Smithsonian research and programs abroad and serves as the liaison between the Smithsonian and foreign institutions, individuals abroad, international organizations, and government agencies. The office also assists with the logistical details of international exchanges of collections or personnel and serves as a point of contact for scholars, museum professionals, and foreign officials seeking to establish cooperative relationships with the Smithsonian.

Professional counsel and services in a variety of travel documentation and immigration-related matters are available from the OIR. During 1988, for example, the office provided documentation for 112 researchers and museum professionals traveling to the Smithsonian and eleven U.S. museums and zoos under the sponsorship of the Smithsonian's government-authorized Exchange Visitor Program. For foreign travel by Smithsonian staff members and grant recipients, the office obtained nearly a hundred passports and more than a thousand foreign visas during 1988.

This year the OIR completed the *Handbook on International Research and Exchanges*, which provides detailed information and advice for Smithsonian staff who wish to undertake work abroad or collaborate with foreign colleagues. Planning also began in 1988 for the development of a computer data base on all Smithsonian foreign research and exchange activities, information previously published in the periodic *Profile of Smithsonian International Activities*.

The office was involved in a number of new coopera-

tive initiatives launched by the Smithsonian during 1988. The office assisted, for example, in the preparation and negotiation of a formal protocol of cooperation concluded with Madagascar's Ministry of Scientific Research and Technological Development. The Smithsonian also significantly expanded its collaboration with organizations in the Soviet Union. Exchanges of exhibitions, scholars, and programs were planned with Soviet counterparts and staff from the Hirshhorn Museum and Sculpture Garden, National Museum of Natural History, Arthur M. Sackler Gallery, Smithsonian Institution Traveling Exhibition Service, "Smithsonian World," and Office of Folklife Programs. As part of its support for these activities, the Office of International Relations arranged visits to the Smithsonian by Soviet Minister of Culture Vasiliy Zakharov, Soviet Academy of Sciences Deputy Secretary General Andrei Kapitsa, Pushkin Museum Director Irina Antonova, and several other Soviet officials. Groundwork was also laid this year for future Smithsonian collaboration with Japanese museums and research institutes. Secretary Robert McC. Adams and National Museum of American History staff visited Japan, and two delegations of Japanese museum officials visited the Smithsonian under the auspices of the Bunkacho, the Japanese cultural agency. Early in the year, Japanese Crown Prince Akihito and Princess Michiko called on Secretary Adams and visited the National Museum of American History. The OIR coordinated or planned all of these visits and arranged for consultations at the Smithsonian with the president of Iceland, the director-general of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and cultural or scientific affairs ministers from Brazil, Bahrain, Korea, Thailand, and Tunisia. In all, the OIR made arrangements for the visits to the Smithsonian of more than 130 foreign officials and distinguished scholars.

The Office of International Relations administers three funding programs designed to encourage international cooperation in scholarly activities. During 1988 the Smithsonian's International Exchange Program supported workshops, training courses, and other short-term activities involving scholars from seven countries working with five Smithsonian bureaus. Now in its third year, the Suzanne Liebers Erickson Memorial Fund supports exchange visits between Smithsonian staff members and Danish scholars, museum professionals, and students. Since its establishment in 1965, the Smithsonian Foreign Currency Program has served to enhance the quality of American scholarly work abroad by providing over \$65 million in funding for scholars from more than 250 institutions throughout the

United States. In 1988 awards from the program supported research in Burma, Pakistan, Yugoslavia, and India. The program supports the research of American institutions—including the Smithsonian—in those countries where the United States held blocked currencies derived largely from past sales of surplus agricultural commodities under Public Law 480. Local currencies have also been made available through the Foreign Currency Program for work in countries where post-Public Law 480 funds have been established for that purpose.

In October 1987 the Office of International Relations cooperated with the Office of Interdisciplinary Studies in the planning and coordination of a colloquium on global food issues. The proceedings were published in September 1988.

International Gallery

The International Gallery's second major exhibition, "Tropical Rainforests: A Disappearing Treasure," opened in May 1988. This cross-disciplinary exhibition focused attention on the Earth's most biologically diverse habitat and its ongoing destruction, which is one of the most serious ecological threats today. Organized by the Smithsonian Institution Traveling Exhibition Service in cooperation with the World Wildlife Fund, "Tropical Rainforests" closed in January 1989 and traveled under the auspices of SITES. In conjunction with the exhibition, the Smithsonian organized a number of public and scholarly programs, including film series, seminars for policymakers, a rainforest folklife festival, and a lecture series sponsored by the Resident Associate Program. Educational materials, teacher training workshops, and a film resource guide were developed for use in schools and in museums on the tour.

Office of Conference Services

Based in the International Center, the Office of Conference Services guides scholars and professionals throughout the Institution in the planning and production of symposia, conferences, and meetings. The office logged almost two dozen requests for assistance in its first months of existence. Initial undertakings included workshops entitled "Mesopotamian Paleoenvironment and Pottery," cosponsored by the Secretary's office and the University of Chicago in July 1988; a "Peace Corps in Arab Countries" conference, cosponsored by the Office

of International Relations and the Peace Corps in September 1988; and the "Crossroads of Continents: Cultures of Siberia and Alaska" symposium, cosponsored by the National Museum of Natural History's Department of Anthropology and the International Research and Exchanges Board, also in September 1988.

Office of Quincentenary Programs

The 500th anniversary of Columbus's first voyage to the New World will be observed in 1992 at the Smithsonian by the activities of at least sixteen bureaus, whose efforts are being coordinated by the International Center's Office of Quincentenary Programs. Exhibitions and programs are being planned in collaboration with scholars and institutions from throughout the United States and abroad to highlight the cultural, historical, and scientific consequences of the encounter between Europeans and the indigenous peoples of the Americas.

A broad array of activities ranging from scholarly and public symposia to exhibitions, publications, and a television series will present the complex relationships between these cultures. The National Museum of Natural History is organizing "Seeds of Change," a major temporary exhibition that will examine the process of plant, animal, and disease exchanges between the Old and New Worlds. At the National Museum of American History, a permanent exhibition and a series of public programs will explore the social and economic ties between Europe and the Americas from the seventeenth century to the present. The Office of Folklife Programs will look at the contribution of certain crops and plants to the establishment of New World societies and at their role as symbols of identity and sources of artistic inspiration. The Smithsonian Tropical Research Institute is organizing the Fourth World Congress on National Parks, to be held in Panama in 1992. The institute is also planning an international symposium, "Non-Imperial Politics in the Lands Visited by Christopher Columbus." "The Buried Mirror" is the title of a bilingual series of five one-hour television programs, written and narrated by Mexican author Carlos Fuentes, which is being developed by the Office of Quincentenary Programs and the Office of Telecommunications. A traveling exhibition on the iconography of Christopher Columbus is being organized by the Smithsonian Institution Traveling Exhibition Service. The National Air and Space Museum plans to publish a world atlas based on satellite photographs. The Cooper-Hewitt Museum will illustrate the influence of Native American

design on European and American decorative arts through an exhibition of ceramics, textiles, metalwork, and architectural motifs.

Man and the Biosphere Program

In 1986 the International Center, in cooperation with the National Museum of Natural History and the Man and the Biosphere-UNESCO Program, launched a new international program on biological diversity inventory procedures. The program was designed to develop a high-resolution data base management system that will eventually provide nearly complete biological inventories of selected species-rich sites, such as national parks, nature reserves, and biosphere reserves (areas set aside for protection and study that are representative of the world's major ecosystems). With such a methodology, comparative work can proceed more efficiently and accelerate the process of understanding biological diversity around the world. One of the most important aspects of this new program is that biologists and other related professionals from developing countries are being trained to conduct their own biological inventories and to assist in cataloguing bioresources within their respective countries. With support from the U.S. Agency for International Development, the World Heritage Program of UNESCO, and the Man and the Biosphere-UNESCO Program, training workshops on the methodology of conducting biological inventories were held during 1988 in Bolivia, Peru, and Puerto Rico. Participants also received training at the National Museum of Natural History in collections management and computer techniques. The program complements the Biological Diversity in Latin America Program, a research initiative of the Museum of Natural History.

Other Programs

Timed to coincide with the annual meeting of the board of directors of the Council of American Overseas Research Centers, an exhibition entitled "Sojourners and Settlers: Yemeni Workers at Home and Abroad" was the first show to be mounted in the International Center Conference Suite. Drawn from a display of photographs taken by scholars gathered together by the University of California, Los Angeles, the exhibition was reorganized and jointly coordinated by the council and the International Center.

Joseph Henry Papers

Staff of the Joseph Henry Papers continued to research and write the sixth volume (1844–46) of the projected fifteen-volume selective letterpress edition of the correspondence and private papers of Joseph Henry (1797–1878), one of America's foremost nineteenth-century scientists and the first Secretary of the Smithsonian Institution. Work was begun on volume 7 (1847–49), which will document Henry's efforts to organize the Smithsonian as a center for original research.

During the past year, installation of the project's local area network and initiation of the development of a revised computer-based document index were part of the effort to have the project's editorial work fully automated by 1989. After almost two years of design, planning, and packing, the project moved into its new quarters on the balcony of the Arts and Industries Building in March 1988. The new space, which includes a separate, secure room for the Bell–Henry Library, is more efficient and compact than the space occupied in the Castle.

Despite its small size, the staff has been active in education programs and exhibitions. Two interns conducted supervised research on topics relating to the history of the Smithsonian. Dr. Paul Theerman, one of the project's assistant editors, taught the history of science at West Virginia University during the fall 1987 semester. He also served as curator of the exhibition, "Isaac Newton and the *Principia*: 300 Years," which traveled to the IBM Gallery of Science and Art in New York City after it closed at the National Museum of American History.

The Joseph Henry Papers continued its commitment to scholarship and service to the history profession. Dr. Marc Rothenberg, editor of the Henry Papers, presented papers or served as organizer or chair at the annual meeting of the History of Science Society, at a joint meeting of the British Society for the History of Science and the American History of Science Society, Anglo-American meeting, and at an international symposium held in Melbourne, Australia, in honor of the Australian bicentennial. In addition, the Joseph Henry Papers now publishes *History of Science in America: News and Views*, the newsletter of the Forum for the History of Science in America.

National Zoological Park

As the survival of the world's living resources becomes more and more threatened, zoos have a critical role to play in directly preserving those resources, as well as in expanding the public's knowledge through exhibitions and programs and in conducting research. The National Zoological Park (NZP) furthers these aims at its Rock Creek Park facility, a popular place for tourists and local residents alike, and at its 3,000-acre Conservation and Research Center (CRC) in Front Royal, Virginia. During 1988 the zoo carried out significant research to advance understanding in the biological and veterinary sciences, while continuing its transition to a biological park that introduces visitors to the ecological and evolutionary relationships among plants and animals.

Animal Exhibits

Animal exhibits are the zoo's primary means of educating the general public about animal welfare and behavior, biological principles and relationships, and the role of humans in the natural world. The exhibits at the zoo appeal to both serious-minded zoogoers and to visitors on recreational outings.

The popular Invertebrate Exhibit, which opened in 1987, was a major step toward transforming the National Zoo into a biological park where plants and animals are exhibited together without the unnatural separation that traditionally has characterized zoos. Two new exhibits that opened in 1988 continue this approach. The Gibbon Ridge Exhibit, located on a wooded ridge, provides a naturalistic setting for the endangered forest apes, which captivate visitors with their spectacular movements and territorial calls. The Waterfowl Wetlands Exhibit, situated in front of the Bird House, displays a wide variety of aquatic birds in a lush environment enhanced by swamp grasses, sedges, cattails, and other wetlands plants. In the spring, ducks, geese, swans, herons, and egrets perform their elaborate courtship rituals in full view of visitors. Both of these new exhibits include innovative interactive graphics that inform and teach visitors.

Design work on the Amazonia Aquatic Exhibit, which furthers the biological park concept, progressed in 1988. The Smithsonian's unrivaled expertise in tropical biology is informing and guiding the concept and design. Like the other new exhibits, the Amazonia Exhibit will integrate animals and plants in the same environment.

In 1988 zoo visitors could view more than 3,000 mammals, birds, reptiles, and amphibians and more than 1,500 invertebrates. The successful breeding of many of



Keepers at the National Zoological Park observe as African elephant "Nancy," left, is allowed in the enclosure with Asian elephant "Shanthi" (right) for the first time, August 25, 1988. Nancy has the large ears and tusks.

the animals is evidence of the quality of care given to the animals at the zoo and at the Conservation and Research Center. The nearly 1,000 births and hatchings in 1988 delighted visitors and bolstered the NZP's stocks of threatened and endangered species. Among the newborns were a giraffe, orangutan, sandhill crane, Guam rail, smoky jungle frog, and Dumeril's ground boa, as well as octopus and several clouded leopards and Père David's

deer. More than 850 of the young animals born at the zoo were traded or sold to other zoos for their exhibits and breeding programs.

A popular and fascinating addition to the NZP's collections were two Komodo dragons, a generous gift from the people of Indonesia. Komodos, the world's largest lizards, are rarely exhibited in zoos. The pair at the NZP are the only ones in the United States, and it is hoped

that they will become part of a breeding program that will result in a self-sustaining population of Komodos in this country.

Conservation

Saving threatened and endangered species, a critical function of most zoos today, is the focus of the NZP's Conservation and Research Center. Housed at the center is the Department of Conservation, which had 390 mammals and 219 birds in its collection as of September 30, 1988. Significant births during the year included a Goeldi's monkey, golden-lion tamarins, clouded leopards, Przewalski horses, Eld's deer, and Arabian oryx. Among the rare birds hatched were Guam rails, Micronesian kingfishers, Bali mynahs, red-crowned cranes, and a sunbittern.

The Department of Conservation began its participation in the Arabian Oryx Species Survival Plan with the acquisition of a pair of these animals in November 1988. Twelve Bali mynahs from the department were included in a group of thirty-nine mynahs transferred to the Surabaya Zoo in Indonesia by U.S. zoos as part of an ongoing cooperative propagation-reintroduction program.

The Conservation and Research Center hosted the fifth summer Wildlife Conservation and Management Training Course, which attracted twenty-four participants from seventeen countries. Dr. Rasanayagam Rudran gave additional courses during the year in the People's Republic of China, Venezuela, and Malaysia. Dr. Christen Wemmer, Dr. J. Andrew Teare, and Charles Pickett presented a new Zoo Biology and Management Training Course in Thailand and Malaysia. Dr. Rudran and Dr. Wemmer received a generous grant from the J. N. Pew, Jr., Charitable Trust to support the Wildlife Conservation and Management Training program.

Dr. Wemmer was appointed to the board of directors of the American Association of Zoological Parks and Aquariums and was named chairman of the association's Species Survival Plan Subcommittee. Dr. Scott Derrickson transferred Guam rails to and from the breeding facility on Guam in May 1988. During his visit he worked with Guamanian and Commonwealth biologists in surveying potential introduction sites on the island of Rota, Commonwealth of the Northern Mariana Islands.

External Affairs

The Office of the Assistant Director for External Affairs and Outreach was created during 1988 to coordinate the

expanding activities of the Offices of Public Affairs, Education, Development, and Design and Exhibit Planning. Gretchen Gayle Ellsworth was appointed to head the office, which also coordinates plans for the zoo's centennial celebration in 1989-90.

Through creative programs, exhibits, and educational materials, the zoo informs and educates its large and diverse audiences. Area teachers learn about the zoo and its educational programs through the *National Zoo News*, a newspaper published by the Office of Education. New activity-based programs, which enable students to observe animals at close range, include "Dinosaurs and Reptiles" (a two-visit program conducted with the National Museum of Natural History) and "Invertebrates." Teacher-training workshops and outreach kits for teachers in the Washington area continued as key components of the zoo's school programs.

To augment the zoo's programs in conservation education, "ZooArk," an exhibit on zoos and worldwide conservation issues, traveled to zoos throughout the United States under the auspices of the Smithsonian Institution Traveling Exhibition Service. An innovative new museum program for junior high school students, "Bison, Butterflies, and Conservation," was begun in cooperation with the National Portrait Gallery and the National Museum of Natural History. It combines behind-the-scenes museum and zoo visits, historical role-playing, and discussion of contemporary issues.

In conjunction with the Friends of the National Zoo, the zoo continued its classes for adults in conservation, animal behavior, and principles of exotic animal medicine. To date, several hundred people have received certificates for a course of wildlife studies, and many more have enrolled in classes.

Through the combined efforts of several zoo offices, educational exhibits were developed this year to accompany major new animal displays, including Gibbon Ridge, Waterfowl Wetlands, Japanese Spider Crabs, and Komodo Dragons. The Office of Design and Exhibit Planning continued its program of preparing information and identification labels about animals, plants, and the zoo. A photographic exhibition for the zoo's centennial, "The Zoo: Then, Now, and Future," was developed.

Work began on a revision of the master graphics plan, which encompasses all forms of visitor orientation. The new system will reflect major physical changes, such as the anticipated 1989 completion of the Olmsted Walk renovation, as well as the major themes of the zoo's centennial observation.

Also in 1988, people across the United States and

abroad shared in the zoo's achievements through the print and broadcast media. An important emphasis of the information provided by the Office of Public Affairs was the zoo's role in conserving animal species through study and breeding. The office also conducted a special promotional campaign to increase the number of visitors in winter and early spring, with the generous pro bono assistance of the firm of Williams and Whittle, Associates. Sunset Serenades, the summer folk, jazz, and blues concert series, attracted new audiences to the zoo during the more sparsely visited early evening hours.

Public lectures throughout the year on wildlife and environmental topics presented new information on North American mammoths, dinosaur biology and behavior, and the evolution of siamangs and gibbons. The zoo's Symposium Series continued to bring serious biological topics to public attention through lectures and discussions. The eighth symposium focused on human cultures as key elements in national and global conservation strategies. Symposia proceedings are published by the Smithsonian Institution Press.

During 1988 an Advisory Council was created to advise and assist the zoo in fund-raising in support of major zoo programs. Led by Dr. David Challinor, science adviser to Secretary Adams and former assistant secretary for research, the council is concentrating first on the Amazonia exhibit and the Australia Pavilion.

Animal Health

The Department of Animal Health (DAH) provides veterinary care for the zoo's animal collections at the Rock Creek Park facility and at the Conservation and Research Center in Front Royal. Research is concentrated in two areas: clinical medicine and reproductive physiology. These research programs involve collaboration with other zoos in the United States and international field trips to Kenya, Tanzania, India, Australia, Burma, Guam, and other locations. The clinical studies now under way include improving anesthetic techniques and utilizing and modifying newer tools, such as ultrasound, endoscopy, and nuclear magnetic resonance, to aid in diagnosing the problems of zoological patients.

In 1988 the zoo opened its new veterinary hospital, a low-profile, two-story building nestled inconspicuously in a wooded hillside overlooking Rock Creek. The building is graceful, appropriate to its setting, and functional. With the new hospital, the zoo now has a state-of-the-art facility for the medical and surgical care of its collection,



One of the many volunteers takes her turn in the panda house kitchen during the Zoo's 1988 Pregnancy Watch. (Photograph by Jessie Cohen)

along with much-needed laboratory space to continue and expand studies. The hospital's facilities for diagnostic support—the clinical pathology, histopathology, and microbiology laboratories—all have the latest biosafety equipment, including laminar-flow cabinets for handling parasites and other microorganisms, which zoo technologists are constantly screening. A new special research laboratory and infectious disease isolation unit will enable the pathology staff to investigate infectious agents in order to control them. The new facilities also include staff offices, a department library-slide review room, a slide accession room, and teaching cubicles. A classroom/conference room also serves as an audio-video center; it is linked to the nearby pathology building so that important necropsies conducted there can be documented or reviewed by students and zoo staff in an uncontaminated environment.

At the Conservation and Research Center hospital in Front Royal, animals are quarantined and major surgical procedures are performed in the surgery suite. The associated laboratories are used for urinary hormone analysis, semen freezing, antibiotic assays, and clinical pathological studies. Analysis of urinary hormones allows the zoo to monitor pregnancies in zoo animals in a noninvasive way.

The zoo made major advances in the field of reproductive physiology and endocrinology during 1988. The Endocrinology Research Laboratory in the veterinary hospital at CRC continues research into monitoring hormonal metabolites in voided urine, a noninvasive approach to studying the endocrinology of zoo species. This technique has been used to determine the reproductive cycle, diagnose pregnancy, and predict parturition in Eld's deer and the Przewalski horse; studies are in progress involving Père David's deer, muntjac, and golden-lion tamarins. The laboratory also monitors the pregnancy of the zoo's giant panda, Ling Ling, and the results are used to plan management and medical decisions.

Research continued into the study of the domestic ferret as a model for the highly endangered black-footed ferret. During the past year, methods for inseminating ferrets by laparoscopy (a fiber-optic system whereby sperm are deposited directly into the uterus through the abdominal wall) resulted in a 70 percent conception rate and the births of more than 140 domestic ferret offspring. Successful procedures were developed to freeze-store ferret spermatozoa. Thirty-one ferret kits were produced using sperm frozen for as long as one year.

Further advances also were made in gamete research and embryo technology. Collaborative research with the Dallas Zoological Park resulted in the birth of a suni antelope after embryo transfer. The zoo's distinction as the first research laboratory to produce carnivore offspring (domestic cat kittens) from in vitro fertilized embryos was advanced further by improving laboratory procedures for producing embryos. About 80 percent of all cat eggs collected fertilize in vitro and result in the formation of embryos. This technology has recently been used in collaborative research with Florida state officials, who are managing the highly endangered Florida panther. In vitro fertilization procedures developed for the domestic cat were used to recover puma eggs and achieve a 45 percent fertilization rate and the production of ten cleaved embryos.

NZP proposes to establish a Genetic Resource Bank, which will rely heavily on the rapidly developing field of cryobiology. Despite the frequent speculation that gamete (sperm and ovum) and embryo cryopreservation will be important for the conservation and management of mammals, no organized effort exists in the United States or elsewhere to sample, evaluate, cryopreserve, maintain, and use germ plasm from animals other than common, domestic species. The proposed Genetic Resource Bank will facilitate international efforts to preserve rare and threatened sources of biodiversity.

Pathology

The Department of Pathology (DOP) provides necropsy and laboratory diagnostic support and engages in research relating to disease of zoo animals. The DOP has continued collaborative studies with the Uniformed Services University of the Health Sciences and the San Diego Zoo on a new viral hepatitis of marmosets and tamarins that particularly affects golden-lion tamarins.

The department also completed a pathologic study of eight giant panda cubs from three zoos (Mexico City, Madrid, and Washington). The study showed that most panda cub deaths were caused by opportunistic bacterial infections associated with the cubs' inability to attain sufficient antibody protection from the mothers' colostrum right after birth. This study was presented at the Second International Symposium for the Giant Panda in Tokyo in November, along with a proposal to adapt technology employing the preparation of concentrated immunoglobulins from parent serums, which would be administered to the cubs at birth.

In a program supported by the Friends of the National Zoo (FONZ), a study carried out by veterinary pathologist Dr. Richard Montali and illustrated by Ellen Seefelt, FONZ junior project assistant, developed a protocol for the post-mortem examination of the diaphragm to detect hernias in golden-lion tamarins. This document was distributed to all breeders of golden-lion tamarins through studbook keeper Jon Ballou.

One of the new research projects is a study by Dr. Carol Partington, a FONZ senior research assistant, of an iron storage disease (hemochromatosis) in the zoo's Bali mynahs. In addition, DOP staff, with the Department of Animal Health and the Johns Hopkins University School of Medicine, are developing a vaccine against a bacterial dysentery caused by shigella. They are also studying the hematology of lizards using members of the *Iguanidae* family as a model. Dr. Don Nichols completed a Smithsonian postdoctoral fellowship on immunologic studies of *P. tenuis* (meningial worm).

Nonmedical Research

The Department of Zoological Research (DZR) provides scientific support and develops innovative programs to further the zoo's missions of conservation, research, exhibition, and education. DZR staff and associates collaborate within and outside the zoo on a broad range of research problems, ranging from long-term multidisciplinary

ary field studies involving numerous scientists in Brazil, Venezuela, and Sri Lanka, to one-on-one collaborations testing a single hypothesis or solving a specific management problem. The department currently collaborates, both within and outside NZP, on more than seventy-five projects.

In June 1988 work began on the \$3 million renovation of the Research Building. Upon completion of the project in the summer of 1989, DZR's functions will be housed in the same location for the first time in over a decade. The new facility has been tailored to the laboratory, administrative, and animal housing needs of the department.

Several staff research efforts continued in the Poço das Antas Reserve in Brazil. Dr. Devra Kleiman, the zoo's assistant director for research, supervised the reserve's Golden-Lion Tamarin Conservation Program, traveling to Brazil to continue basic field research with NZP research associate Dr. James Dietz on the population dynamics, reproductive cycles, and demography of this endangered species and to monitor the progress of captive-born tamarins reintroduced to the reserve between 1984 and 1987. Dr. Kleiman also began a long-term study of small mammal ecology in the reserve in collaboration with Dr. Jody Stallings of the University of Florida.

Dr. Dietz collaborated with research associate Dr. Lisa Forman in using DNA "fingerprinting" to determine kinship in wild and captive golden-lion tamarins. Dr. Dietz and research associate Dr. Steven Thompson conducted studies measuring the relative energetic costs of huddling behavior in tamarins, both in captivity and at the Poço das Antas Reserve. Research associate Lou Ann Dietz ran the golden-lion tamarin education programs in and around the reserve.

Dr. Thompson was among department staff who conducted studies of terrestrial mammals during 1988. He completed basic research on the comparative energetics of small marsupials and eutherian mammals, concentrating on sugar gliders, potoroos, North American porcupines, tree kangaroos, and ring-tailed possums. The San Joaquin kit fox in California is the subject of a field study that research zoologist Dr. Katherine Ralls initiated for the Nature Conservancy. With population manager Dr. Jon Ballou and others, Dr. Ralls continued collaborative research on estimating minimum viable population sizes for wild and captive populations. Dr. Olav Oftedal, NZP nutritionist, began a diet study of the folivorous red howler monkey in Venezuela in collaboration with research zoologist Dr. Rasanayagam Rudran and Dr. Sue Crissey of the Brookfield Zoo. Miles Roberts, coordinator of the Red Panda Species Survival Plan, continued



A new tank and exhibit were built to house the giant Japanese spider crabs in the Invertebrate Exhibit at the Zoo. A donation from All Nippon Airways funded construction of the 3,000-gallon tank. (Photograph by Jessie Cohen)

research on the behavioral ecology of the eastern chipmunk at the zoo and completed life history studies of a variety of small mammals. In Sri Lanka, research associate Dr. Wolfgang Dittus completed the eighteenth year of his sociodemographic studies of the toque macaque, focusing on the evolution of social behavior, mechanisms of population regulation, and the genetic structure of populations. Dr. Ted Grand finished a senior Smithsonian postdoctoral fellowship study of comparative mammalian anatomy and movement patterns with emphasis on ungulates, callitrichid primates, and caviomorph rodents in collaboration with the Department of Pathology.

Marine mammals were the subject of a number of research efforts during 1988. Dr. Ralls collaborated with Dr. Donald Siniff of the University of Minnesota to study movement patterns of sea otters off the California coast. Dr. Oftedal studied comparative analyses of pinniped milk in collaboration with graduate student Sara Iverson and NZP research zoologist Dr. Daryl Boness, and lactation strategies of harbor seals on Sable Island, Nova Scotia, in collaboration with Dr. Boness and the Canadian Department of Fisheries and Oceans. Dr. Boness pursued studies of California sea lion maternal investment on San Nicholas Island and of the endangered Hawaiian monk seal. He initiated studies of the behavior of the Juan Fernandez fur seal and South American sea lion in Chile and

Argentina, both in collaboration with Smithsonian postdoctoral fellow Dr. John Francis.

Research related to birds included DZR staff member Dr. Eugene Morton's continued work on *Animal Vocal Signals and Communication*, a title in the Behavioral Biology Series of Cambridge University Press. Dr. Morton also initiated studies in migrant bird demography and comparative evolution of the martins and continued long-term studies of a long-distance migrant bird, the Kentucky warbler, at the zoo's Conservation and Research Center. Research associate Dr. Kim Derrickson began studies of individual song and repertoire preference in mockingbirds and continued studies of seasonal changes in nest location and construction patterns in wild mockingbirds. Research associate Russell Greenberg continued research on neophobia (the fear of new surroundings and new stimuli) in song and swamp sparrows and collaborated with zoologists Dr. James Lynch of the Smithsonian Environmental Research Center and Dr. Samuel Droege of the U.S. Fish and Wildlife Service to analyze bird census data for possible trends related to tropical forest deforestation. Susan Haig began a Smithsonian postdoctoral fellowship to study the genetics of the endangered Guam rail and Micronesian kingfisher, two species for which collaborative captive breeding programs provide the only safeguard from extinction.

In other staff activity, Dr. Oftedal completed several studies on green iguanas with Dr. Dagmar Werner and the Iguana Management Project, Panama, and research associates David Baer and Mary Allen of the NZP. Dr. Lisa Forman evaluated genetic differences between the three forms of *Leontopithecus* (lion tamarins). She also established a working genetics laboratory at the Hospital/Research Building with facilities for DNA "fingerprint" analysis, cloning, and tissue culturing.

Construction and Support Services

Nineteen eighty-eight was a busy year for the construction of exhibits and facilities. The Office of Facilities Management completed work on the Invertebrate Exhibit, the renovation of the Panda House, the second phase of the Olmsted Walk renovation, Gibbon Ridge, the new veterinary hospital, the Komodo Dragon Exhibit, the Waterfowl Wetlands Exhibit, the Mississippi Fish Exhibit, the FONZ bookstore, Beaver Pool, and the renovation of the Propagation Building. Work began on a number of major projects: the renovation of the Elephant House, the third phase of Olmsted Walk, the replacement of NZP's high-voltage electrical system, and the major renovation of the older Hospital/Research Building. The emphasis on the zoo as a biological park has resulted in the installation of new planting beds and the upgrading of existing ones.

The Office of Planning was created during 1988 to coordinate major construction projects as outlined in NZP's revised master plan and to provide coordination among capital construction, renovation and restoration, and in-house repair. Esthetic overview, environmental assessment, historic preservation, land-use planning, landscape design, visitor impact, feasibility, and appropriate federal commission reviews are part of the coordination process.

During 1988 the Office of Police and Safety was able to solve the majority of the zoo's radio communications problems. The office administrative and technical staff have been consolidated in one suite of offices, thus improving the delivery of safety, security, and enforcement services to the NZP. The Police Unit continues to keep the park a safe place to visit and work.

Office of American Studies

Now in its twenty-first year, the program in graduate education sponsored by the Office of American Studies was designed to encourage research in the field of material culture, using the collections and personnel of the Smithsonian Institution's many museums. Another original purpose of the program was to overcome the separation then existing between university and museum scholars. Through formal courses conducted at the Institution, graduate students from cooperating universities are encouraged to take advantage of the opportunities that the national museums offer. Courses have dealt with art, technology, and social, cultural, and political history. The research interests of participating students have ranged from art to anthropology.

The 1987 fall semester seminar, "Material Aspects of American Civilization," focused on political culture and the Constitution. The seminar was taught by Dr. Wilcomb E. Washburn, director of the program, and Dr. Bernard Mergen of George Washington University. Ten students participated—six from George Washington University and four from the University of Maryland.

Other seminars during the past year included "The Decorative Arts in America," taught by Barbara G. Carson of George Washington University, and "Art in History," taught by Dr. Lillian B. Miller of the Smithsonian's National Portrait Gallery. Thirty-six students participated in these seminars.

Two graduate students are pursuing specialized research under the supervision of the office's director. Dr. Washburn continued his research in early exploration and discovery, museum history, and anthropology.

Office of Fellowships and Grants

At the Smithsonian, historical and anthropological objects, original works of art, natural history specimens, living plants and animals, entire ecosystems, and even the universe are available for study. The Institution and its curators offer unparalleled resources, unavailable anywhere else and essential to many research projects.

Each year hundreds of scholars and students of art, history, and science from the United States and abroad come to the Smithsonian to use these unique resources. The Office of Fellowships and Grants (OFG) develops and administers the numerous programs designed to assist researchers working at Smithsonian facilities in conjunction with the Institution's professional staff. These academic programs, which include long- and short-term residential appointments, are an important complement to those offered by universities. Approximately 800 undergraduate and graduate students and scholars received awards administered by the OFG in 1988.

Programs for Visiting Students and Scholars

The office awarded eighty-eight predoctoral, postdoctoral, and senior postdoctoral Smithsonian Research Fellowships in 1988, including nineteen foreign students from sixteen countries. Participants in the twenty-three-year-old fellowship program conduct independent studies under the guidance of staff. Research is carried out in the Institution's bureaus or at field sites, usually over a period of six to twelve months. Topics of study in 1988 spanned a range of scholarly interests, from the content and function of audience talk in art and history museums to the morphological analysis of asteroid larvae. Other topics included sea otter genetics; black Christianity and black society; Charles L. Freer and Japanese art; paleoecology and site formation of Kanjera, Kenya; and rates of molecular evolution in marine gastropods.

Twenty-three U.S. and six foreign students in the early stages of their graduate training received ten-week fellowships in 1988. These awards enabled the students to explore areas that they are considering as the subjects for their dissertation research. They studied such topics as American public ritual in the 1850s; form, style, and symbolic content in Arctic fur clothing; material culture in twentieth-century American life; and the physiological ecology of competition between temperate forest vine and tree species.

Smithsonian Institution Regents Fellows in residence in 1988 included David Kingery of the the Massachusetts

Institute of Technology, who worked at the Conservation Analytical Laboratory and the National Museum of American History to study the role and development of materials technologies. At the National Museum of American Art, Albert Boime of the University of California, Los Angeles, continued his research on nineteenth- and twentieth-century American art.

George A. Michell received a fellowship in 1988 to conduct research on the arts in South Asia. The fellowship is funded by a grant from the Rockefeller Foundation Program in the Humanities to support postdoctoral research related to the programs of the National Museum of African Art and the Arthur M. Sackler Gallery and Freer Gallery of Art.

The Faculty Fellowship Program encourages minority faculty members to conduct research at the Smithsonian. In 1988 seven awards were made for two- to four-month periods. Some of the subjects Faculty Fellows studied were Baltimore's antebellum free black community; the history of public health in nineteenth-century Washington, D.C.; the singing life of the Reverend Dr. Joseph Johnson; and the costumes of nineteenth-century Afro-Americans.

In addition to the Institution-wide programs funded through the OFG, the office administers fellowships and other awards supported with funds from bureau sources. In all, there were ninety-two such awards in 1988 for visitors who came to the Institution for varying periods.

At the National Air and Space Museum, this year's awards included appointments to the Daniel and Florence Guggenheim, A. Verville, and International fellowships. The Smithsonian Astrophysical Observatory offered four postdoctoral and five predoctoral fellowships. Also this year, the National Museum of American Art, in conjunction with the James Renwick Alliance, developed the James Renwick Fellowship Program in American Crafts. One senior and one graduate fellowship were awarded under this new program, which encourages research in the history of twentieth-century American art, crafts, or design.

The Conservation Analytical Laboratory made seven postgraduate internship awards for research and training in areas ranging from art conservation to objects conservation. These interns were appointed to a variety of SI bureaus, including the Conservation Analytical Laboratory, the Cooper-Hewitt Museum, the National Museum of African Art, the National Museum of American Art, and the National Museum of American History.

The popularity of the OFG's short-term visitor program continues to grow, especially with participants from

developing regions of the world. In 1988 the program assisted 138 scholars, including 74 international visitors from 31 nations, who came to the Institution to conduct research, examine collections, present seminars, and coauthor publications with Smithsonian staff.

Under the OFG's successful workshop program, scholars in research, education, and museological fields gathered to discuss issues of mutual or complementary interest. Last year Smithsonian staff members organized nineteen workshops. One of these, "Collections and Culture: Museums and the Development of American Life and Thought," was a joint venture of the Woodrow Wilson International Center for Scholars and the National Museum of American History. Some of the other topics included women in the progressive era, the coming of modernism to Chicago, 1920-40, and the systematics of sea cucumbers.

Internships and Other Programs

Internships continue to provide valuable experiences for students and are becoming an integral part of many undergraduate and graduate programs. The Office administers all internship appointments supported with stipends. In 1988 these included fifteen at the National Air and Space Museum, four at the Hirshhorn Museum and Sculpture Garden, and three at the National Museum of American Art. Twelve students participated in the Smithsonian Environmental Research Center's work-and-learn program in environmental studies. At the National Museum of Natural History, the Botany and Vertebrate Zoology Departments offered new programs of stipend support for twenty-four students. Fifty-six interns received stipends from other bureaus.

Twelve students participated in the Smith College-Smithsonian Program in American Studies. The program features a seminar course and research projects conducted under the supervision of staff members.

High school students also took advantage of the Institution's internship opportunities through the successful programs offered by the Office of Elementary and Secondary Education (OESE). In 1988, forty-one students participated in a five-week session designed to broaden an existing academic or vocational interest. The OFG also administered five appointments to the Teacher Intern Program for the OESE.

The OFG supplemented these programs with efforts aimed at increasing the participation of minority students in Smithsonian research activities. Forty-six minority un-

dergraduate and graduate students from all over the country were awarded internships to work in bureaus and offices throughout the Institution.

In collaboration with the bureaus, the office continued a program for Native American students and community scholars, with sixteen short-term awards in 1988. The scholars' research projects included the Smithsonian's Seminole artifacts and materials, and prehistoric and historic Pueblo textiles.

With the support of a grant from the Smithsonian Educational Outreach Program, the Office and Howard University offered the second session of a program to promote minority interest in natural history. Students from Howard, accompanied by two Howard faculty members, spent a week at the Smithsonian Environmental Research Center participating in field exercises and learning about staff research. Three other faculty members from historically black colleges observed the course. Faculty members then visited the Mall to learn more about the Institution and opportunities for research and study. The Office expects to expand this pilot program to include other schools and fields of study.

The Office continued to administer cooperative education appointments aimed at minority graduate students whose research interests coincide with those of the Institution. In 1988 three students were in cooperative education positions, working in professional research-related jobs at the Smithsonian while continuing their university education. The appointments hold the potential for permanent employment at the Smithsonian.

The Education Fellowship Program, which offers support for graduate study and research training, also continues to encourage the participation of minority students in the Institution's fields of interest. One fellow, a graduate student in anthropology, is continuing his studies at the University of Massachusetts and spending the summer months conducting fieldwork in the Caribbean.

The Webb Fellowship Program, named in honor of Regent Emeritus James E. Webb, is intended to promote excellence in the management of cultural and scientific nonprofit organizations. This year six professional staff members from the Smithsonian were awarded fellowships to enhance their administrative abilities. The recipients came from the staffs of the National Portrait Gallery, Conservation Analytical Laboratory, National Museum of American Art, Hirshhorn Museum and Sculpture Garden, Office of Folklife Programs, and Office of International Relations.

The Scholarly Studies Program is a competitive grant program that funds research by Smithsonian staff and

outside collaborators that falls outside the purview of traditional sources of support. As a result of two meetings of a review committee composed of scholars from outside the Institution, thirty-five one- and two-year grants were awarded in 1988.

The Research Resources Program supports archival projects that arrange, describe, preserve, and make available to scholars collections of major importance to research in the arts, the sciences, and history. During the first year of this pilot program, which was developed to complement the Scholarly Studies Program, a review committee of archivists from outside the Institution recommended that seven grants be awarded.

Smithsonian Astrophysical Observatory

Is Earth unique? Or are there other planets orbiting stars elsewhere in the Milky Way? Although most people believe that other stars may have planetary systems like the one around our star, the Sun, the observational evidence in support of this view has been very weak.

This year, scientists from the Smithsonian Astrophysical Observatory (SAO) obtained the first convincing evidence for a planet circling a star other than our own. They used a painstaking technique designed to detect minute variations in a star's motion caused by the gravitational attraction of a companion body. The faint star HD 114762, one very much like our Sun, at a distance of some 90 light-years from Earth, was found to have a slight periodic wobble due to a large planet in orbit about it. Because the viewing angle of the orbit is still unknown, the size of the planet cannot be calculated with any certainty, but it is most likely a giant body some ten to twenty times more massive than Jupiter. The planet's distance from HD 114762 is about the same as that of Mercury from the Sun. Since HD 114762 is about as luminous as the Sun, the planet would have ovenlike temperatures, making it an unsuitable habitat for life. This discovery, however, supports the speculation that other stars in our galaxy have planetary companions—and that some of them may even have conditions conducive to the development of life and the evolution of intelligence.

Appropriately, the discovery of a low-mass companion to HD 114762 was made at the Smithsonian-operated Oak Ridge Observatory in Harvard, Massachusetts, with an optical telescope located just a few yards from an 84-foot radio receiver devoted exclusively to the search for signals from a technologically advanced civilization elsewhere in the universe.

These two unusual investigations underscore the sometimes unexpected, often complementary, and always exciting nature of the diverse research programs of the Smithsonian Astrophysical Observatory. Founded in 1890 by the Institution's third secretary, Samuel Pierpont Langley, for studies of "the new astronomy," the observatory today prepares to celebrate its centennial as one of the world's premier centers for astrophysical research. From pioneering studies of solar-terrestrial relationships to the establishment of a worldwide satellite-tracking network, the SAO has been a leader in fields as diverse as the application of new technology to telescope design, the observation of cosmic x-rays, and the survey of large-scale structure in the universe. Since its move to Cambridge, Massachusetts, in 1955, the SAO has been closely associated with the Harvard College Observatory (HCO). Their partnership in the Center for Astrophysics (CfA)

has allowed a broad interdisciplinary approach to research that combines observations across the entire electromagnetic spectrum with theoretical studies to provide a deeper understanding of the basic physical processes shaping the cosmos.

Research programs are organized in seven divisions, with efforts coordinated to complement each other. Data-gathering facilities include telescopes at the Fred Lawrence Whipple Observatory on Mount Hopkins in Arizona and at the Oak Ridge Observatory, and a millimeter-wave radio telescope in Cambridge. In addition, SAO scientists gain access to data from instruments aboard rockets, balloons, and space satellites, as well as from laboratory experiments.

On behalf of the International Astronomical Union, the SAO operates two global science information services. The Central Bureau for Astronomical Telegrams disseminates information about transient astronomical phenomena such as comets and supernovas. The Minor Planet Center computes orbits and provides observational information on asteroids and serves as the official arbiter of minor planet nomenclature.

In collaboration with Harvard, the SAO is conducting an innovative program to develop secondary-school curriculum materials that use examples from astronomy to teach basic principles of physics and mathematics. This year the SAO hosted a special Summer Institute for high school teachers from around the country who critiqued and refined teaching aids and classroom activities to be field-tested in their home schools.

Highlights of the research conducted during the past year in each of the observatory's seven divisions follow.

Atomic and Molecular Physics

Almost all the information that comes from astronomical objects is in the form of light. To understand the physical conditions within those objects, as well as the intervening medium through which the light travels, one must first understand the complex atomic and molecular processes that create the light and alter it during its long journey to Earth. Through a combination of theoretical studies and laboratory experiments, SAO scientists attempt to describe these processes.

In one such project, SAO scientists have studied how the presence of unusually large molecules in space may change our understanding of interstellar cloud chemistry. Increasing evidence suggests that the interstellar medium may be laced with giant molecules ranging in size from



30 to 100 atoms each. These molecules may be the source of infrared radiation seen near many astronomical bodies. Moreover, the presence of such molecules, known to researchers as polycyclic aromatic hydrocarbons, appears to resolve a discrepancy between astrophysical models of diffuse interstellar clouds and observations by reducing the abundance of singly charged atomic ions through a process known as charge-transfer.

Inside very hot astronomical bodies, a process known as dielectronic recombination occurs, in which electrons collide with positively charged atoms to form less highly charged atoms. This process is particularly important in high-temperature, low-density plasmas, such as those in the atmospheres of the Sun and other stars. SAO scientists have developed an extremely sensitive ion-beam experiment to measure the dielectronic recombination rates as a function of electric field for several ions present in the solar corona, or outer atmosphere.

High-Energy Astrophysics

High-energy x-ray radiation is associated with some of the most energetic—and violent—processes in the universe. Fortunately for humans, the Earth's atmosphere absorbs x-rays, but this also means all observations must be made from balloons, rockets, or space vehicles. SAO scientists are currently analyzing x-ray data from several past space missions and are preparing instrumentation intended for future spaceflight, including a High-Resolution Imaging Telescope to fly aboard the Advanced X-ray Astrophysics Facility.

Clusters of galaxies, the largest aggregations of matter yet recognized in the universe, can be studied by observing the x-ray emissions from the very hot gas filling the space between individual galaxies. SAO scientists used x-ray images from the Einstein Observatory satellite, which completed its mission in 1981, and visible light observations of both large clusters and smaller groups of galaxies to compare the amount of matter found in the galaxies with that seen in the medium between them. They found a much larger percentage of gas in the large clusters,

which suggests that galaxy formation (by condensation out of the gaseous medium) may be more efficient in smaller clusters.

Further studies will be aimed at determining how much of the intercluster gas is primordial—left over from the early formation of the universe—and how much has been produced more recently by processes inside the stars. Indeed, SAO scientists examining images of nearby galaxies have already found some evidence that explosive forces in galactic centers may be driving gas out into the surrounding space.

Although the Sun is not a particularly copious emitter of x-rays, its 2-million-degree-Celsius gaseous outer atmosphere does radiate strongly at these wavelengths. This year, a novel SAO-built x-ray telescope, equipped with a modified Hasselblad camera and special high-sensitivity film, was flown aboard a suborbital sounding rocket to make extremely high spatial resolution images of the hot corona.

Optical and Infrared Astronomy

Optical and infrared astronomy research at the Smithsonian Astrophysical Observatory ranges from studies of the large-scale structure of the universe to the formation and evolution of stars. In support of this research, the SAO operates the Fred Lawrence Whipple Observatory, site of the Multiple Mirror Telescope, the world's third largest optical telescope, jointly run with the University of Arizona. Other optical telescopes at the observatory are used for large-scale surveys and other observations. A light collector 10 meters in diameter, the most sensitive of its type, is used for ground-based searches for high-energy gamma rays. In collaboration with Harvard, the SAO also operates the Oak Ridge Observatory, where a variety of instruments are employed for research ranging from asteroid orbital determinations to galactic studies to the search for extraterrestrial intelligence.

The long-term program using a 1.5-meter telescope at the Whipple Observatory to survey the distribution of more than 10,000 galaxies has produced a striking three-dimensional map that suggests that the galaxies are distributed on flattened sheets surrounding vast, bubblelike voids, some more than 100 million light-years in diameter. This year, the survey was extended to the Southern Hemisphere through collaborative programs with observatories in Brazil and Argentina. The initial results indicate that the large-scale structures seen in the northern sky prevail throughout the universe.

Aerial view of the Fred L. Whipple Observatory in Arizona. Lower left: at the 7,600-foot level, site of the gamma-ray collector and two optical telescopes. Upper left: on the 8,500-foot summit of Mt. Hopkins, the Multiple Mirror Telescope. (Smithsonian Astrophysical Observatory photograph)

SAO scientists and their collaborators reached a milestone in ground-based gamma-ray astronomy when they detected gamma rays from the Crab Nebula with the 10-meter-diameter light collector. The observation establishes a "standard candle," that is, a steady source of gamma-ray emission at a known level against which to search for and measure other, weaker sources in the sky. It also offers new clues to the physical processes at work within the expanding shell of that exploded star.

Planetary Sciences

Research in planetary sciences at the SAO strives to understand planets, satellites, and other small bodies of the solar system, as well as the processes that created them billions of years ago. Research continued this year on the wealth of data provided by the European Space Agency's Giotto mission to Comet Halley in 1986, and a new study is under way on the likely mode and place of comet birth. As part of investigations on the mineral composition of meteorites, SAO scientists have calculated that the original solar nebula must have been rich in oxygen, suggesting that icy, cometlike, presolar material may have vaporized and then recondensed without ever mixing with the nebula's gases.

Worldwide interest in Supernova 1987A continued to play a major role in the record-breaking activity of the Central Bureau for Astronomical Telegrams. An unprecedented number of reports on comets—sixteen new discoveries and seventeen recoveries—added to the total of messages received and transmitted this year.

Radio and Geoastronomy

Research in radio astronomy attempts to understand the structure, evolution, energy sources, and ultimate fate of those astronomical objects that emit radio waves. As pioneers in very long baseline interferometry (VLBI), SAO scientists use this radio observing technique to measure directly drifts among the continents, to probe the interior of the Earth, and to determine the distances to cosmic sources and study their structures.

One major effort has been to measure the size of our own galaxy and the distance to neighboring galaxies. By charting the relative motions of water-vapor masers (amplified emissions of microwaves) surrounding a newly formed massive star, scientists can determine the distance to that star with high precision. This technique has been

used to measure the distance to the center of the Milky Way, and this year new data yielded an even more accurate value for this distance. Similar measurements were made of maser complexes in the neighboring galaxy M33; these measurements may make possible the first direct determination of this galaxy's rotation.

The large-scale structure of the Milky Way can be probed and mapped by measuring the distribution of carbon monoxide gas, a molecule that emits strong radio signals at millimeter wavelengths. This year SAO scientists conducted the first complete survey of clouds of carbon monoxide, leading to the discovery that the inner part of the Milky Way may contain as much matter in molecular form as has been previously seen in the form of atomic gas.

The SAO continued its leadership in the development of instruments for astronomical research, including highly stable atomic clocks built to support programs of VLBI, deep-space tracking efforts, and national time-keeping programs. The most novel instrument, an optical interferometer constructed on Mount Wilson in California by the SAO in collaboration with several other institutions, began daily observations to determine the position of stars with an accuracy 10 to 100 times greater than is possible with conventional telescopes.

Solar and Stellar Physics

Research in solar and stellar physics is concerned with understanding the physical processes underlying the behavior of the Sun and other stars. Scientists study stars like the Sun to understand the dependence of observed properties on factors such as their age, their composition, and their physical association with others in pairs and groups. Of particular interest to SAO scientists is the behavior of hot gas under varied conditions—in the Sun's interior, in the outer atmospheres of stars, in the space between stars, and in the material ejected by young stars and supernovas.

One of the major puzzles of solar physics, for example, is determining what process heats the Sun's outer atmosphere and creates the powerful flow of gas and supercharged particles called the solar wind that sweeps over all the planets. An SAO-conceived instrument called an Ultraviolet Coronagraph Spectrometer, designed to create artificial eclipses and allow continuous observation of the solar corona and study of the solar wind, has been selected for flight aboard the international Solar Heliospheric Observatory in the mid-1990s.

Smithsonian Environmental Research Center

To study magnetic activity cycles in other stars, SAO scientists observe the relationship between this activity—as evidenced by “spottedness” on a star’s surface—and stellar rotation. For example, since one hemisphere of the giant star Delta Coronae Borealis is covered with dark regions, or “starspots,” its exact period of rotation has been determined from accurate measurements of the star’s periodic dimming. A new research tool being used for these observations is the Automatic Photoelectric Telescope, a relatively low-cost, fully automated instrument, ideal for long-term monitoring of cyclic stellar brightness variations. The SAO has established two such telescopes at the Whipple Observatory, and plans are now under way to develop a worldwide network.

Theoretical Astrophysics

Theoretical astrophysicists study the objects and systems of the universe by means of mathematical analysis and computer simulations. Although usually intended to interpret observed phenomena, this research often results in the prediction of new phenomena not yet seen. Among other investigations last year, SAO scientists sought possible explanations for a number of phenomena, including the cosmic background radiation thought to be a remnant of the Big Bang, the manner in which large gas clouds collapse to form galaxies, the properties of the material spiraling into black holes, the instabilities in the powerful winds expelled from stars, and the processes that destroy globular clusters.

Globular clusters are dense, spherical congregations of several million stars, usually found on the periphery of the Milky Way. Among the oldest objects in the galaxy, they may hold clues to its formation. The manner in which globular clusters are destroyed becomes important in accounting for observed differences between the orbits of globular clusters and halo stars, also found outside the main disk of our galaxy. In their investigations, SAO theorists found that most of the initial population of clusters had been destroyed by tidal disruption and that those remaining have generally been distributed in orbits aligned along the plane of the galaxy.

On 2,600 acres bordering the Rhode River, a tributary of the Chesapeake Bay, Smithsonian scientists are contributing to a better understanding of complex environmental phenomena and problems. Through the Smithsonian Environmental Research Center (SERC), located in Edgewater, Maryland, they carry out long-term interdisciplinary studies in the field and in the laboratory.

The center complements its research activities with educational programs for students—from undergraduates to postdoctoral fellows—and for the public. Teacher- and docent-led tours acquaint the public with the center’s mission and facilities. Hikes along the two-mile Discovery Trail or center-organized canoe outings on the tidal river introduce visitors to the wonders and fragility of the coastal environment.

Through regular seminars, center researchers and their counterparts from universities and governmental laboratories keep each other abreast of work and issues in areas of mutual interest. In addition, the center organizes and hosts scientific workshops on a variety of topics.

The center sponsored about thirty research seminars for its staff and the public during 1988. Educational tours and activities involved about 5,000 visitors. Approximately thirty undergraduate, graduate, and postdoctoral students conducted research projects at the center.

During 1988 the center’s facilities were expanded to meet growing research needs. A 7,400-square-foot laboratory wing was added to the main office and laboratory building, and the building was renamed in honor of former U.S. Senator Charles McC. Mathias of Maryland, a tireless champion of the Chesapeake Bay. An instrument shop was also added to the shop building.

The following examples of 1988 research activities show how SERC studies help unravel the complex web of factors that influence the health of the environment. Research is conducted by staff scientists, who represent a diverse array of disciplines, and by visiting scientists and students.

Impact of Air Pollution on Forests

Air pollution has many documented impacts on the deciduous hardwood forests of the Chesapeake Bay drainage basin, including decreased physiological vigor, leaching of nutrients, and the inhibition of photosynthesis. Scientists at the Environmental Research Center have measured a high correlation between daily ozone levels in the Washington, D.C., urban area and at the center’s research facility. Using a variety of approaches, they are



Dr. David Challinor, Dean Anderson, and Dr. David Correll flanked by visitors and staff watched Senator Charles Mathias break ground for a new laboratory addition named in his honor at the Smithsonian Environmental Research Center in Edgewater, Maryland. (Photograph by Richard K. Hofmeister)

measuring the deposition of gases and fine particles in these forest canopies. In a research tower constructed in a tall tulip poplar forest, instruments enable scientists to measure the forest's photosynthesis, respiration, and efficiency of trapping air pollutants. Initial studies to characterize this forest with respect to peak basic ecological parameters have found median leaf numbers at an elevation of seven to eight meters, median leaf mass at twenty-two to twenty-three meters, and median leaf area at eighteen to nineteen meters. Leaf stratification is species specific and segregates into understory (zero meters to ten meters), midcanopy (ten meters to twenty-five meters) and overstory (twenty-five meters to thirty-seven meters). Intensive studies of this forest will determine the rates of wet and dry atmospheric deposition and measure the impacts of these depositions on the vegetation and soil of a forest, which has been carefully characterized for future comparative purposes.

Woodland Bird Populations

In the past, the center's researchers have investigated the breeding habitat preferences and requirements of woodland birds in the Chesapeake Bay region. These studies included the effects of forest fragmentation that results

from development and land usage (for example, farming). Most woodland bird species spend the majority of their lives wintering in the tropics, so the staff's research has expanded to investigate the impact of land management in the Yucatan peninsula of Mexico on these bird populations. Overwintering migrants comprised forty-two regularly occurring species and accounted for forty-one of the individual bird species surveyed in a wide range of natural and disturbed habitats. The preferred habitat for most migrant species was tropical forest. Species that preferred mature forest as their breeding habitat in the Chesapeake region also preferred mature forest in the tropics, while overwintering migrants that breed in forest edge or field habitats avoided tropical forest. In the course of this study, thirteen species of birds were recorded for the first time in the Yucatan peninsula; fifty-six other species of birds were found in new locations.

Ant Identification

Ants are a diverse and important part of the Chesapeake landscape. This year, center staff published an annotated checklist and key to the ninety ant species that occur on the coastal plain lands of Maryland, Virginia, and Delaware. This publication was designed as an aid to biologists interested in behavioral and ecological studies of ants in the mid-Atlantic region. Seventy of these ant species have been collected at the center's study site on the Rhode River.

Greenhouse Effect on Tidal Marshes

The center is conducting the only current study of the impact of increased concentrations of carbon dioxide in the atmosphere—the "greenhouse effect"—on natural plant communities. On a tidal marsh, experimental plant plots have been created in open-top chambers that are designed, built, tested, and calibrated for continuous carbon dioxide enrichment of the air. The chambers allow the continuous measurement of plant photosynthesis, respiration, and water-use efficiency. The test atmosphere composition was selected to simulate conditions predicted for the Earth early in the twenty-first century, when the warming of global temperature is expected to cause massive changes in the ecosystem. Long-term studies will allow investigators to assess whether plant communities can acclimate to the altered atmosphere and whether species composition in these communities will be affected.

In one of the plant species studied—*Scirpus olneyi*—the elevated carbon dioxide levels resulted in greater productivity. There was increased shoot density and fall dormancy was delayed. On the other hand, there was no effect on the growth of *Spartina patens* plants, probably because of the nature of their photosynthetic mechanism. Another aspect of the study focuses on the dynamics of nitrogen nutrition in these plants. When exposed to increased carbon dioxide, the *Scirpus* community showed no increase in nitrogen assimilation, and scientists project that this factor may limit the impact of increased carbon dioxide levels on the productivity of this wetland area.

Narrow-Leaved Cattail Ecology

Tidal marshes of the Chesapeake are categorized as either low- or high-elevation marshes. Low marshes, which flood frequently at high tide, are dominated in the Rhode River by narrow-leaved cattail. Field experiments have shown that dead shoots provide vital aeration for underground storage organs during the dormant season. Cutting or bending dead shoots at the soil surface lowered the oxygen concentrations in below-ground plant parts and also lowered above-ground production and flowering in the following growth season. Cutting had a greater effect than bending. Dead shoots can be bent over by wind or snow, destroyed by fire, or cut off by ice movement or by animals such as muskrats. These natural disturbances have significant effects on plant growth and reproduction.

Self-Thinning in Wild Rice Populations

Plant ecologists have been interested in size variation and self-thinning in plant populations for many reasons. As natural plant populations mature, differences in self-thinning between species help determine which species will dominate. In managed plant populations, self-thinning characteristics help managers determine optimal plant spacing at each stage. The center's staff have investigated these aspects of a wild rice population in a Chesapeake Bay freshwater tidal marsh. Size variability decreased during the course of density-dependent mortality (self-thinning). This effect was probably driven by competition for light. These results have important implications for plant evolution, since only those plants that survive this self-thinning process will reproduce.

Blue Crab Ecology

The blue crab is a pugnacious predator in the Chesapeake Bay. One result of its aggressive activity is the frequent loss of one or more legs. These legs can regenerate, but the adverse effects of limb loss and regeneration are not well understood. A study at the Environmental Research Center found that 19 to 25 percent of the blue crab population were missing at least one limb. The loss of four or more limbs was rare.

In laboratory experiments, various limbs and combinations of two limbs were removed and the long-term effects on growth and molting frequency were measured. The loss of a single cheliped (large claw) did not alter the molting frequency or the percentage of weight increase. Multiple limb loss, however, significantly affected growth rate. By the second molt, this effect was no longer observed. Blue crabs regenerated 85 percent of a limb in the first molt following limb loss. The rarity of multiple limb loss in the natural population suggests that the population's overall growth rate is not seriously affected by limb loss.

Smithsonian Institution Archives

The Smithsonian Institution Archives (SIA) cares for the Institution's records and is responsible for documenting Smithsonian history. As the Institution grows and diversifies, so do its archival needs. To acquire, preserve, and service an adequate historical record, the Archives must anticipate future preservation and research requirements and make effective use of new technologies. Toward that end, the Archives has begun a decade of modernization and development. Program reviews by the Archives staff and the Smithsonian's Management Committee, a study conducted by American Management Systems, Inc., to assess automation alternatives, and a conservation study have all contributed to the Archives' plans for the future. In order to identify and coordinate the needs, interests, and concerns of archives and special collections throughout the Institution, a Smithsonian Institution Archives and Special Collections Council was established and held its first meetings during the year.

Major developments this year included the lease of interim archives storage in the Northern Virginia suburbs of Washington, D.C.; receipt of a grant from the Smithsonian Research Resources Program to conserve early architectural drawings of Smithsonian buildings; development of an automated data base for accession reports; development of an automated box-labeling procedure; and an Institution-wide seminar on the management requirements of audiovisual records.

General Archival Program

During the year the Archives helped the newly appointed archivist at the Arthur M. Sackler Gallery and Freer Gallery of Art formulate a mission statement. Assistance with filing and information systems was provided to the Office of Fellowships and Grants, the Office of Environmental Management and Safety, and the *Wilson Quarterly*. The Archives also advised the archivist of the American Association of Museums Registrars Committee and began a records survey of the Smithsonian Institution Libraries.

Nearly 200 groups of records were accessioned this year, including records of the museums and central administrative offices, private papers of curatorial and scientific staff, and records of professional societies. One of the largest accessions was the papers of herpetologist George W. Nace of the University of Michigan. Also accessioned were the papers of former Smithsonian research associate and helminthologist Roman Kenk and those of former curator of entomology Ralph E. Crabill. The ar-



An early twentieth-century photograph of a National Zoological Park keeper feeding a pygmy hippopotamus was included in the Archives' first number in its new series *Occasional Papers*. The "Guide to Animal-Related Records at the National Zoological Park, 1887-1985" was written by Julie Hamman of Portland State University.

chives received additions to the papers of entomologist Curtis W. Sabrosky, botanist Floyd McClure, historian Nathan Reingold, paleontologist Ellis L. Yochelson, and paleontologist Charles L. Gazin.

This year the Herpetologists' League and the American Arachnological Society named the SIA as the repository for their records. The Archives received additions to the papers of the Crustacean Society, the American Society of Zoologists, the American Association for Zoological Nomenclature, and several other professional societies.

Reference Service

The Archives staff answered nearly 1,400 inquiries and provided almost 6,000 items and some 25,000 copies to researchers. Smithsonian Institution Press Director Emeritus Edward F. Rivinus wrote an article on the philatelic interests of second Secretary Spencer F. Baird as a side-light to his work on a biography of Baird. Harvard paleontologist Stephen Jay Gould studied the fourth Secretary, Charles D. Walcott, and his discovery of the Burgess Shale locality, while paleontologist Ellis Yochelson continued his work on a biography of Walcott. Archives staff spent considerable time helping researchers working on the Crow Ethnology Catalogue, which will

document the Smithsonian's Crow Indian collection. The staff and interns of the Office of Architectural History and Historic Preservation continued to study the history of the Natural History Building and the National Zoological Park.

The SIA added many new entries to the list of publications based on research using archives collections. These included *Exploring the West*, by Herman J. Viola (Washington, D.C.: Smithsonian Books, 1987); "Meteorology in America, 1814-1874: Theoretical, Observational, and Institutional Horizons," by James R. Fleming (Ph.D. dissertation, Princeton University, 1988); and "'All about Me Forgotten': The Education of Caroline Healey Dall (1822-1912)," by Gary Sue Goodman (Ph.D. dissertation, Stanford University, 1987). A recent issue of *Earth Sciences History* (volume 6, 1987,) contained three articles that draw on SIA collections: "James Hall and the New York Survey," by Michele L. Aldrich and Alan E. Leviton; "Walcott in Albany, New York: James Hall's Special Assistant," by Ellis L. Yochelson; and "Meek at Albany, 1852-1858," by Clifford M. Nelson.

The Research in Progress lecture series continued this year with topics ranging from archaeology to aeronautics. David J. Meltzer of Southern Methodist University spoke on American archaeology at the turn of the century. Tom Crouch, chairman of the Department of Social and Cultural History at the National Museum of American History, discussed facets of his research for a biography of the Wright brothers. The series closed for the year with a lecture on "A Botanical Rivalry: Stephen Elliott, William Baldwin, and the LeContes," by George A. Rogers, professor emeritus in the Department of History at Georgia Southern College.

Projects

The Smithsonian Archives Oral History Project continued interviews of Institution scholars and administrators in 1988. The collection now totals 316.5 hours of recording, accompanied by 5,600 pages of transcripts. Interview topics ranged from the history of systematic biology to the development of the Hirshhorn Museum and Sculpture Garden.

The Smithsonian Videohistory Program, funded by the Alfred P. Sloan Foundation, continued to support the work of Smithsonian historians and curators to document the history of science and technology using videotape. By the end of the year the program had created nearly ninety hours of videotape. Topics included the design and man-

ufacture of twentieth-century small arms; the observing techniques in traditional ground-based astronomy; the development of the first electronic digital computer; the history of the Manhattan Project; and the role of the Rand Corporation in aerial reconnaissance. The archives historian began work on a multiyear project that will trace the role of Smithsonian scientists as policy advisers on the conservation of endangered species.

During 1988 the SIA's ongoing survey of Smithsonian photographic collections resulted in the second volume of the *Guide to Photographic Collections at the Smithsonian*, to be published by Smithsonian Institution Press. This volume serves as a guide to photographic collections in the National Museum of Natural History, the Smithsonian Tropical Research Institute, the Smithsonian Astrophysical Observatory, and the National Zoological Park. Work has begun on the third volume, a guide to art bureau photographic collections.

Surveying began during 1988 at the National Museum of American Art. By the close of the year, collections containing seven million photographs had been surveyed and described. Project staff members also assisted more than 125 photo collection managers and curators from Smithsonian bureaus and outside organizations in solving reference, management, and conservation problems involving audiovisual resources.

Publications

In 1988 the Archives issued the first in a new series of publications, *Occasional Papers*. The *Guide to Animal-Related Records at the National Zoological Park, 1887-1985*, the result of a survey undertaken to document registration records, was written by Julie Hamman, an intern from Portland State University. Two new numbers in the *Guides to Collections* series were published during the year. William E. Cox was the author of the *Guide to the Papers of George Sprague Myers, circa 1903-1986, and Undated*. James A. Steed wrote the *Guide to the Records of the Office of the Secretary, (Samuel P. Langley), 1866-1927*.

Smithsonian Institution Libraries

With collections numbering more than one million volumes, including more than 20,000 journal titles and 35,000 rare books, the Smithsonian Institution Libraries (SIL) supports the Institution's research and curatorial activities and its programs for loan and information services, publications, exhibitions, and public lectures. SIL serves its users through a network of fourteen branch libraries spread over thirty-eight locations throughout the Washington, D.C., area and in New York City; Cambridge, Massachusetts; Mount Hopkins, Arizona; and the Republic of Panama. Personnel resources are enhanced through the service of fifty-two volunteers, many young people who are participating in stay-in-school programs, and five interns, including a professional librarian from Australia. SIL participates in the creation of a national bibliographic data base, Online Computer Library Center (OCLC), with more than 18 million records and 8,000 member libraries, and makes its records available through an on-line catalogue, accessible from more than 100 terminals.

A member of the Association of Research Libraries, SIL is divided into three operational divisions—Research Services, Collections Management, and Automated Systems—and a Planning and Administration Office. Highlights of this year included the final stages of a multiyear renovation, which continued in units of the Automated Systems Division and in the Planning and Administration Office.

Research Services

The Research Services Division provides library service for Smithsonian staff, scholars from outside the Institution, and members of the public. In 1988 staff of the fourteen branch libraries answered 74,160 reference questions posed by on-site users and in telephone and written inquiries. The Museum Reference Center in particular experienced a surge of more than 3,500 additional requests for information, many from foreign countries planning new or expanded museum ventures.

In order to provide additional information on a number of topics of continuing interest, the staff developed more than a dozen new bibliographies. These range from an annotated bibliography on the Victorian garden in the United States, prepared by the Office of Horticulture branch library, to a bibliography on the golden-lion tamarin written for the National Zoo branch library. These two branches, as well as branches in the National Museum of African Art and the Anthropology Department

of the National Museum of Natural History, prepare monthly lists that alert potential users to newly acquired materials in the SIL collections.

Providing appropriate research materials to readers is another important function of the Research Services Division. This year, SIL circulated almost 67,000 items to borrowers within and outside the Institution. Of these, nearly 38,000 volumes were from the SIL collections. The remainder were borrowed from other libraries to meet the needs of Smithsonian researchers, were photocopied from materials in the SIL collections, or were obtained in photocopy from other libraries or from a commercial document delivery service. Of the loans made in all formats, close to 7,000 went by interlibrary loan to libraries outside the Institution for use by their patrons.

The third area of focus for Research Services staff was the improvement of physical facilities in several SIL branches through renovation, expansion, or rearrangement to make better use of available space. The branch at the Smithsonian Environmental Research Center accomplished the greatest leap forward. Thanks to the center's willingness to make available and remodel a large area, the library is for the first time properly housed with room for expanded collections and study space. The Remote Annex on North Capitol Street in Washington, D.C., was expanded and renovated to ensure the long-term survival and immediate accessibility of the collections housed there. Especially critical was the installation of air-conditioning. At the National Museum of American History (NMAH), about half of the branch library collections previously stored in the first-floor storage area, including serials, auction catalogues, and encyclopedias, were moved to the new and improved facilities at the Remote Annex. The other half, principally the trade literature collection, is being housed in a temporary area in the museum awaiting the completion of the Dibner Study Center. As at the NMAH branch, the shifts and changes at the National Air and Space Museum branch library were undertaken at the museum's instigation in an effort to solve space problems. Compact shelving was installed in order to consolidate the branch's collection and release space for the construction of museum offices.

In the National Museum of Natural History (NMNH), the Botany Library has been renovated and expanded and the collections shifted to improve their accessibility. Similarly, the Anthropology Department is providing additional space in which to erect stacks and relieve overcrowding. Concurrently, the SIL is continuing to merge the collections from the Bureau of American Ethnology and the Smithsonian Office of Anthropology. The



Smithsonian Institution Libraries reception for opening of National Museum of African Art Branch in the South Quadrangle, November 1988. left to right: Janet L. Stanley, chief librarian of the African Art Branch of the Smithsonian Institution Libraries with Warren M. Robbins, founder and director emeritus of the National Museum of African Art, for whom the SIL Branch is named.

collections in the Mollusks, Fishes, and Kellogg libraries have also been shifted to achieve greater accessibility. The NMNH library staff and users continue to enjoy the remodeled main branch space, which was officially inaugurated with a gala open house early in the fiscal year.

The new branch at the National Museum of African Art is also enjoying a positive response from its users. Branch use has increased substantially since it moved to its new facility. The branch was named in honor of Warren M. Robbins, founder and director emeritus of the National Museum of African Art.

Collections Management

Selection, acquisition, deaccession, and preservation are the management activities of this division, which is responsible for the maintenance of the more than one million volumes and other research resources that form the libraries' collections. In June the Institution transferred the Smithsonian International Exchange Service (SIES), formerly known as the Office of Publications Exchange, to the libraries. On behalf of U.S. universities, institutes, and other nonprofit organizations, SIES receives, sorts, and ships scholarly materials to their foreign counterparts

and, in turn, receives foreign publications for domestic distribution. Established in 1848, SIES is one of the Smithsonian's oldest continuous programs and provides an important link among scholarly communities here and abroad.

Through its own exchange program, SIL acquires valuable research materials by agreements with 3,500 official exchange partners throughout the world. This year the division staff began to review and reactivate journal subscriptions (more than two-thirds of SIL's active subscriptions) that come from foreign universities and research organizations in exchange for Smithsonian publications. This is an especially important task in the light of recent dramatic price increases in journal subscriptions, provoked in part by the rapid fall of the dollar against foreign currencies since 1985.

SIL added a new Preservation Services unit to the division roster in February 1988 to develop and implement programs to improve the life span of non-rare books and journals. Unit responsibilities include binding paperback volumes and journal issues, microfilming brittle books, and improving the care and maintenance of collections. Improved procedures and enhanced funding enabled the unit to bind approximately 13,000 volumes in 1988, an increase over previous years.

Books and journals containing highly acidic paper are in the most danger of deterioration. SIL's Book Conservation Laboratory has installed a new nonaqueous "soft-spray" deacidification system to neutralize acids in paper and protect it against further acid-caused damage. The convenient, reliable system lowers considerably the cost of treating books and flat papers. The system has been useful this year in conserving SIL's collection of books and journals owned by James Smithson, the Institution's founder.

To protect brittle volumes until they can be micro-filmed, SIL places them in specially constructed boxes. A grant from the Women's Committee of the Smithsonian Associates in 1988 enabled SIL to construct boxes to protect several hundred late-nineteenth-century volumes pertaining to Native American languages.

SIL's African art collections were greatly enhanced by Helen Segy's gift of the library of her late husband, Ladislav Segy. A pioneer in the field of African art, Mr. Segy opened one of the first African art galleries in 1952 in New York City and ran it until his death in 1987. The gift includes books, journals, slides, photographs, and field notebooks. SIL honored another major donor who passed away this year, Dr. Bern Dibner, by purchasing a rare work on natural philosophy, Gines Rocamora y

Torrano's *Sphera del universo* (Madrid: Juan de Herrera, 1599) as a memorial volume. A 1988 award from the James Smithson Society enabled SIL to purchase one of the rarest eighteenth-century books on the history of papermaking, *Versuche und Muster ohne alle Lumpen oder doch mit einem geringen Zusatze derselben Papier zu machen*, by Jacob Christian Schaeffer (Regensburg: 1765–1771). The volume has special significance for the Smithsonian. In 1856, the *Washington Star* reported that the Institution had acquired a copy of the 1772 edition, which may have been lost in the 1865 fire in the Castle, since no evidence or record of it exists.

Automated Systems

SIL increasingly uses electronic technology for most of its processing functions, both for internal library operations and for resource-sharing and communication with other libraries. The Institution's Bibliographic Information System (SIBIS), installed in 1984, is the major mechanism for most SIL automated functions. It provides an on-line system with a central data base of bibliographic information. Manual processes and files are gradually being replaced with electronic processing and machine-readable files that can be updated and accessed from most of SIL's scattered locations. In 1988 SIL completed the basic conversion of its records from standard manual files to machine-readable format. This conversion program, begun in 1981, has added a total of 375,000 records to the data base. The program is now directed toward upgrading and converting partial and substandard records.

SIL planned and implemented new phases of the SIBIS automated system this year. The SIBIS circulation system, which will be phased in gradually, will be operational in the first branch in October 1988. Approximately 425,000 volumes in the SIL collections represented in the on-line catalogue were bar-coded to allow for electronic identification and circulation control. SIL implemented a new capability in the SIBIS acquisitions module this year: an automatic claim for books ordered, but not received. The acquisitions module is also used for on-line ordering, processing orders, account maintenance, interface with the Institution's Accounting Office, and on-line access to order information. The SIBIS electronic mail system, in use for two years, has fostered better and faster interoffice communication among SIL staff.

During 1988 SIL continued to catalogue previously uncatalogued gift and trade literature collections. In addition to in-house work, almost 13,500 titles were

catalogued by contract. More than 2,300 trade catalogues were indexed and added to SIL's on-line catalogue by July 1988. SIL also began cataloguing rare items in the Cooper-Hewitt Museum branch.

Public Programs

In February SIL honored Dr. Bern Dibner, who died January 6, 1988, with a memorial exhibition that featured memorabilia highlighting his life and accomplishments. A concurrent exhibition was held at the Burndy Library, which he founded in Norwalk, Connecticut. Dr. Dibner collected the 10,000 books and 1,600 manuscripts that the Burndy Library donated to the Institution in 1974, forming the core of the Dibner Library of the History of Science and Technology, a part of SIL's Special Collections Branch.

As a member of the Washington Collegium for the Humanities (WCH), SIL presented a public lecture for the 1988–89 Lecture Series, "Death and the Afterlife in Art and Literature." Professor Betty Jo T. Dobbs of Northwestern University gave an illustrated lecture, "Alchemical Death and Resurrection: Alchemy in the Age of Newton," featuring Newton manuscripts in the library's collections.

SIL published catalogues for two of its exhibitions, "Book Conservation Laboratory Tenth Anniversary Exhibition" and "Marbled Papers in Books." An exhibition of selected issues of nineteenth- and twentieth-century journals purchased from the Franklin Institute in Philadelphia were displayed in the Dibner Library. A new book published in the Translation Publishing Program, *Description of the Tula Weapon Factory* (originally published Moscow, 1826), was distributed to 170 domestic and foreign libraries and deposited in the National Technical Information Service for permanent accessibility. "Information for Borrowers," incorporating guidelines for SIL's automated circulation system, was published for distribution to users of the libraries' system.

Smithsonian Tropical Research Institute

The luxuriance of the natural world peaks in the tropics, which shelter the earth's greatest diversity of plants and animals. Tropical organisms exhibit the greatest variety of ways to live and reproduce, and the relationships between different species are most complex and elaborate in the tropics. Just as this stunning abundance of life was a revelation and a stimulus to early evolutionary biologists like Charles Darwin and Alfred Russell Wallace, so it is to modern biologists.

The rapid disappearance of tropical habitats requires us to learn as many lessons as they have to offer, as quickly as possible. A greater understanding of why natural communities in the wet tropics are so lush may suggest how humanity can live in tropical habitats without ruining their beauty or productivity. Indeed, a knowledge of how tropical habitats interact with global ecosystems may be critical to the ultimate ability of humans to survive anywhere on this planet.

Scientists at the Smithsonian Tropical Research Institute (STRI) work to increase our knowledge in these and other areas of tropical biology. STRI is a premier international center for tropical research and is recognized as an international mission by the Republic of Panama. The institute's twenty-seven scientific staff and scores of visiting scientists carry out basic research on the ecology, behavior, and evolution of tropical plants and animals and are concerned with how man's past and present activities in the tropics affect biological processes. In addition, the institute supports international education and training in its research areas and encourages the conservation of tropical flora, fauna, and cultures.

STRI's unique geographic location in the Republic of Panama and the variety of its facilities offer students and visiting scientists from around the world access to a rich diversity of terrestrial and marine environments. STRI scientists also conduct research elsewhere in the tropics and collaborate with colleagues at research institutions worldwide.

The institute administers the Barro Colorado Nature Monument, which protects more than 13,000 acres of tropical forest surrounding the Panama Canal. The centerpiece of this monument is Barro Colorado Island. STRI also maintains three marine laboratories, on the Pacific coast near Panama City, on the Caribbean coast near Colon, and in the San Blas Archipelago in the Caribbean. STRI sponsors research at these and other sites through a variety of resources. In addition to its own scientific staff, STRI supports predoctoral and postdoctoral fellows for periods of two months to three years. Visitors and staff have access to an extensive reference

library, and STRI provides housing, office, and laboratory space for visiting scientists for a modest fee.

In 1988 STRI continued its long record of progress and achievement in research, facilities development, and international education and conservation. The number of research publications from work done at the institute should exceed the more than 200 published in 1987. Two STRI scientists received major honors for their research. The bureau opened a new cloud forest research station, and construction neared completion on the state-of-the-art Earl Silas Tupper Research Center.

Honors

Basic to understanding any biological phenomenon is a sound grasp of the natural history of the organisms concerned. Two STRI naturalists have been signally honored for such work this past year. The election of Dr. Mary Jane West Eberhard to the National Academy of Sciences was a fitting tribute to STRI's tradition of research in ethology, ecology, and evolution. Dr. Eberhard has studied the social organization of wasp colonies, the circumstances by which a queen wasp comes to dominate a colony, and the extent to which she can cause her fellow colony members to work together for her benefit. These studies show the important role sexual selection and other forms of social competition play among all social animals, and they shed much light on how social behavior can evolve.

Dr. Philip De Vries, who has been a predoctoral and a postdoctoral fellow at STRI, recently received an unsolicited award from the MacArthur Foundation to support him and his research for five years. He is studying riodinid caterpillars which, when alarmed by potential insect predators, produce sounds that attract certain ants to protect them. Fellows at STRI have always made important contributions to our understanding of Barro Colorado Island and other sites, and it is satisfying to see them suitably honored.

Research Highlights: Sexual Selection and Behavior

Environmental biologists have argued that sexual selection can be an important agent of biological diversification. In species where males compete for matings, novel ways of attracting or stimulating females are at a premium. Coevolution between male attractions and female



The Smithsonian Tropical Research Institute, in cooperation with INRENARE and ANCON of the Republic of Panama, replaced several bridges in Soberania National Park, one of the most accessible lowland tropical forests in the new world.

responses to them is, however, an unpredictable process. If a population is geographically divided, this process can develop differently in the different subpopulations. Eventually, females of one may find themselves not attracted by, or even unable to mate with, males from the other, rendering the two groups distinct species. Thus, understanding the circumstances that favor effective sexual selection, and the mechanisms by which it works, may help us understand how species originate.

Dr. David Zeh, a three-year postdoctoral fellow at STRI, is studying a species of pseudoscorpion in a lineage

that disperses by riding large beetles. They disperse from one dead fig tree to another under the elytra, or wing cover, of a species of harlequin beetle whose larvae usually occur in dead fig trees. Mites, which the pseudoscorpions eat, also live under the elytra of these beetles, providing sufficient food to maintain male pseudoscorpions for at least three weeks.

Dr. Zeh's species is the only one of its lineage where males are markedly larger than females. This kind of difference is usually a sign of sexual selection based on combat between males. And indeed, these males establish mating territories under the elytra of their beetles. Dr. Zeh is interested in how the males compete for mates, what constitutes an attractive mating territory, and, more generally, why sexual selection is so much more effective in this species than in its relatives.

Dr. John Christy of the STRI staff is studying sexual selection in fiddler crabs, *Uca beebei*, which live on mud flats of the Pacific coast. Many males build a pillar of mud next to their burrows. Forty-eight percent of the females courted by males with pillars enter the males' burrows, while only 20 percent of those courted by males without pillars do so. Yet once a female enters a burrow, the length and depth of the burrow, but not the presence or absence of a pillar, affect her decision whether to stay and breed. When frightened, fiddler crabs are more likely to flee into a burrow with a pillar. An unanswered question is, why don't all males build pillars? They seem easy to build, and Dr. Christy's experiments show that the pillars do not attract predators or unwanted intruders. Moreover, males without pillars do court females, a vastly more energetic business than building pillars.

Dr. A. Stanley Rand of the STRI staff is continuing his study of sexual selection in tungara frogs, testing females to determine which aspects of the complex male call make it preferred to the simpler call. Working with Dr. Michael Ryan of the University of Texas, Dr. Rand is asking whether the complex call stimulates part of the female's auditory apparatus that the simpler call does not or, in other words, whether the complex call exploits a sensory capacity of the females that can be pleurably stimulated.

Tungara frogs call only when floating in the water, and they produce waves on the water surface with each call. Dr. R. Stimson Wilcox of the State University of New York has "recorded" these surface waves and "played them back" to male frogs. The males responded to the waves of water as if they were hearing real calls and adjusted their own accordingly.

Kyle Summers, STRI predoctoral fellow from the Uni-

iversity of Michigan, is studying mating behavior in *Dendrobates auratus* on Taboga Island, a few miles beyond Naos. Another study of mating behavior is being carried out by postdoctoral fellow Christopher Peterson, who is looking at the simultaneously hermaphroditic coral reef fish *Serranus tabacarius* at STRI's San Blas field station.

Among the tropical forest's most characteristic features is the stunning variety of insects. Yet they are difficult to study and, with a few spectacular exceptions, are poorly known. As a result, many species are not even named, and most of the named species can only be identified by experts. We know, however, that they play a fundamental role in the life of the forest: They may actually be responsible for the great diversity of tropical trees. The amazing differences in their habits from one species to the next may help us grasp general principles governing the evolution of social behavior.

Dr. Donald Windsor of the STRI staff, along with research associate Dr. Henry Stockwell, is surveying the ecology and social behavior of the 120 species of cassidine beetle in Panama. Dr. Windsor has found host plants for more than forty of these species. Their larvae all feed on fast-growing secondary foliage of several different plant families. No one species of larva, however, has yet been found to feed on more than one genus or more than two species within that genus, suggesting a specialization to particular food plants of the type thought to maintain plant diversity. The idea is that insect specialists depress the numbers of their own host plant, allowing room for different species that they cannot eat. The beetles vary greatly in behavior, and Dr. Windsor is exploring possible explanations for this diversity.

Dr. Allan Herre, a STRI postdoctoral fellow, is studying the effects of parasitic nematodes on fig-pollinating wasps. This study should shed light on the circumstances that allow natural selection to transform parasitic relationships into mutually beneficial ones, a fundamental process in evolution.

STRI staff scientist Dr. William Eberhard is completing a study of the relationship between the shapes and the uses of the pinchers on the hind ends of male earwigs. Like beetle horns, earwig pinchers have diverse, frequently elaborate shapes, often characteristic of a particular species. But unlike male beetles, which use their horns almost exclusively to fight for access to females, male earwigs also use their pinchers as threat devices, courtship devices, and to clasp hold of a female during copulation. The role of these pinchers in sexual selection, however, may be the primary reason why shapes usually differ from species to species.

Research Highlights: Molecular Evolution

This year marked the beginning of the new program in molecular evolution at the Smithsonian. Research at STRI is a major component of this initiative at the frontiers of evolutionary biology. This new capability permits STRI scientists to address fundamental questions about the origin and integrity of species. When the Isthmus of Panama rose from the sea several million years ago, it geographically separated the populations of marine species that occurred in the area. Many of these organisms are now distinct species.

Staff scientist Dr. Harilaos Lessios and new staff scientist Dr. Eldredge Bermingham asked whether proteins in species of sea urchins on either side of the Isthmus evolved at a different rate than the DNA in their mitochondria, which are organelles found inside cells. They found that the DNA evolves at a much more regular rate than the proteins. The results imply that mitochondrial DNA is a much better "molecular clock" than proteins for estimating the amount of time a given pair of species has been separate.

Dr. Lessios and former postdoctoral fellow Dr. James Weinberg, now of the Woods Hole Oceanographic Institution, compared proteins from populations of the small crustaceans called isopods from different Atlantic and Pacific beaches in Panama. They were surprised to find smaller differences between oceans than between different beaches on the same ocean. Practically every beach in the eastern Pacific is characterized by populations with unique genetic structure, even over distances of less than one-sixteenth of a mile. The low dispersal ability of these animals probably accounts for this striking effect.

Along with Dr. Howard Lasker of the State University of New York (SUNY) at Buffalo, Dr. Lessios also examined the variability of proteins in a species of gorgonian, a soft coral. The species exhibited absolutely no variability, even from populations as distantly separated as the Bahamas and Panama. The cause of this uniformity remains a puzzle. Dr. Lessios and Daniel Brazeau of SUNY Buffalo found that another species exhibited high variability. Yet this latter species tends to occur in clones of asexually produced offspring, which in theory should be genetically uniform. Much remains to be learned from the gorgonians.

Research Highlights: Seasonal Rhythms

The tropics are not usually thought of as particularly seasonal in nature. Yet the Panamanian climate creates a

strikingly cyclical alternation of wet and dry seasons. While physical seasonality in Panama is not nearly as extreme as in the temperate zone, research at STRI has shown that animals and plants respond significantly to the changes that do occur.

STRI scientist Dr. John Cubit and his associates have just published a fifteen-year record of different climatic variables for the reef flat at Galeta and the ways different aspects of the physical environment respond to those variables. Dr. Donald Windsor is preparing a similar document for Barro Colorado Island.

Dr. Robert Stallard of the U.S. Geological Survey in Denver has been monitoring seasonal changes in the chemical content of streams draining different soils on Barro Colorado Island. From these data he can deduce the chemical processes responsible for weathering these soils and the impact of those processes on soil fertility at different seasons.

Michael Keller, a graduate student at Princeton University, is assessing the net contribution of methane to the atmosphere from various habitats of central Panama. In Panama, perennially flooded habitats release methane. Seasonal swamps release methane when flooded and suddenly start consuming it when dry. Upland forest soils (but apparently not vegetation) consume methane more rapidly during the dry season than during the rainy season.

Jaime Cavalier, a STRI predoctoral fellow from the University of Cambridge, is comparing the seasonal rhythm of root production on Barro Colorado Island, at nearby Gigante, and at the cloud forest near Fortuna on the Chiriqui Highlands. On Barro Colorado, he finds that irrigation abolishes the seasonal rhythm of root production. In the cloud forest, the peak flush of new roots occurs during the driest months, and root production is much lower than at Gigante.

Seasonal rhythms in climate influence the timing of leaf flush, leaf fall, and fruit production. The resulting seasonal alternation of feast and famine in fruit and new leaves is thought to regulate animal populations. Deciphering those features of climate that affect leaf and fruit production of different plants will allow us to infer from the climatic record the reliability with which the forest supplies food to different kinds of animals.

Dr. Joseph Wright of the STRI staff is completing a four-year field experiment assessing the effect on different kinds of plants of keeping the soil saturated all year and thereby mitigating the effects of the annual dry season. Canopy and midstory trees were, for the most part, little affected, but irrigation increases the total year-round leaf

production of understory shrubs, such as *Piper* and *Psychotria* species.

Dr. Alan Smith and Dr. Joseph Wright, STRI scientists, and Dr. Stephen Mulkey of the University of Missouri at St. Louis are studying the different ways that understory shrubs adjust to seasonal variation in water supply. *Psychotria marginata* makes one set of leaves early in the rainy season and another set very late. As one might expect, the second set of leaves is designed for the dry season. During the early dry season, they photosynthesize more per unit of water transpired than the leaves designed for the rainy season. Another shrub, *Psychotria limonensis*, produces long-lived leaves throughout the year. A particular leaf changes physiologically from one season to another, improving its overall performance as a result. *Psychotria furcata*, however, produces 90 percent of its leaves early in the rainy season. They are well suited to wet conditions, but very poorly suited for the dry season. A close link appears to occur between the rhythm of leaf production and the conditions for which the leaves are suited.

This year, STRI fellow Dr. Jacalyn Giacalone of Upsala College continued a long-term study of frugivorous mammals, red-tailed squirrels, and agoutis (burrowing rodents) on Barro Colorado Island. Dr. Giacalone also began following brocket deer, finding that during the dry season they eat mostly leaves, flowers, and fruit newly fallen from the forest canopy.

Dr. Nicholas Smythe of the STRI staff found that seeds of the palm genus *Astrocaryum* can only germinate and grow if buried by agoutis. During the season of fruit shortage, the animals depend heavily on buried seeds. The dormancy of *Astrocaryum* seeds varies greatly. Some germinate in a month, and some remain dormant but viable through three successive seasons of fruit shortage.

STRI scientist Dr. Ross Robertson is exploring what factors govern seasonal rhythms of reproduction in coral reef fish. Do they reproduce when conditions are good for adults or when their larvae can best survive in the plankton? To address this question, Dr. Robertson simultaneously records reproductive activity and recruitment of larvae from the plankton at various reefs in the San Blas Islands. He finds that adults breed when they can, regardless of the prospects for their larvae.

Research Highlights: Effects of Catastrophes and Disturbances

To what extent are the fates of various populations governed by occasional catastrophes? With the passage of

time, STRI has witnessed several such events and monitored their effects. The 124-acre Forest Dynamics Project plot of old forest on Barro Colorado Island was re-mapped in 1985–86. Dr. Stephen Hubbell of Princeton University found that 16 percent of the trees over 10 cm in trunk diameter had died since 1980–81. This figure amounts to a death rate of more than 3 percent per year. Earlier, more limited studies in the same place had indicated death rates of 1 percent per year. Apparently, the very severe El Niño dry season of 1982–83 killed one-tenth of the trees on the plot. The next recensus in 1990 will enable STRI scientists to judge the long-term effects of this event.

A group led by STRI scientist Dr. Jeremy Jackson and managed by Dr. Brian Keller continues its study of the consequences of the April 1986 Caribbean oil spill. Corals have been sliced and x-rayed to assess recent changes in growth rate. For all species of coral, the growth rate has declined during the last five years, perhaps because the die-off in 1983 of long-spined sea urchins (*Diadema antillarum*) has allowed greater competition from the algae the *Diadema* were eating. Coral growth was particularly low during the year of the oil spill. This study will be extended to older corals to place the effects of the oil spill in perspective, to monitor the effects on coral growth of recent nearby reforestation, and perhaps to assess the effects of the disappearance of Indians and subsequent forest regrowth after the Spanish conquest.

The oil spill project may force a reconsideration of evidence in intertidal ecology, which relies heavily on the results of small-scale field experiments. Such experiments have established the causes of zonation and the models of population regulation of rocky shores of the temperate zone. One cannot infer, however, the results of a widespread calamity such as a *Diadema* die-off or a major oil spill from small-scale *Diadema* removals or applications of oil. The scale of the calamity alters the community's powers of recovery.

Research Highlights: Anthropology

Anthropological researchers at STRI are seeking to reconstruct the history of human settlement in Panama. To a large extent, this history can be inferred from the history of vegetation recorded in sequences of pollen and phytoliths in lake sediments. But the history of the vegetation is interesting for many other reasons. Was the forest largely cleared before the arrival of Columbus? Was Panama much drier or much cooler 15,000 years ago than it is



Smithsonian Tropical Research Institute's new high-speed launch for Barro Colorado Island being placed in Gatun Lake in November 1987.

now? Answers to these questions could reveal how quickly tropical forest recovers from widespread disturbances.

As part of this study, new STRI staff scientist Dr. Dolores Piperno and visiting scholars Dr. Paul Colinvaux and Dr. Mark Bush, both of Ohio State University, bored and lifted a 60-meter-long core, spanning over 35,000 years, from a lake near El Valle. They also continued their study of a 14,000-year core from La Yeguada, a lake in the highlands of Veraguas. Their results indicate that more than 12,000 years ago the vegetation zones near La Yeguada were 800 meters lower than they are now, suggesting that the climate was much cooler then. Carbon from fires set by humans first appeared in the lake 11,200 years ago. Temperatures there attained present-day levels about 8,600 years ago. Pollen and other traces of maize appeared in the lake 7,000 years ago.

Mediating between Man and Nature

With support from the W. Alton Jones Foundation, five years ago STRI initiated research on how man could live in profitable harmony with tropical nature. Among the projects started then is Dr. Nicholas Smythe's continuing

study of the domestication of the paca, a small mammal considered a delicacy. Wild pacas are exceedingly aggressive toward each other, and Dr. Smythe has sought ways to make them more tolerant in populations dense enough for commercial exploitation. He has scored a signal success: Fifteen young have now been born, one or both of whose parents were born in the colony and "tamed" by being with other pacas when young. This second generation of pacas was not forced to live together, yet the female offspring are living happily and unaggressively in a group with one male. Without human intervention, they have learned from their parents how to be social animals—a truly novel behavior for pacas.

Dr. Dagmar Werner is completing her project on raising iguanas for commercial exploitation and reintroduction to the wild. She plans to continue iguana work with the National University of Costa Rica's master's program in wildlife management in Heredia, Costa Rica.

STRI scientist Dr. Gilberto Ocaña is continuing his experiments with reclaiming soils ruined by fire and overgrazing. He has planted two and a half acres of old pasture with three leguminous trees, *Giliciridia sapium*, *Acacia mangium*, and *Acacia flexuosa*, all of which fix nitrogen in the soil and provide leaves for livestock. He has planted cassava under a third of these trees and will plant sorghum and *Pueraria phaseoloides*, a crawling vine, under the rest. When the trees mature, their leaves will be fed to stabled goats. Dr. Ocaña hopes his experiments will demonstrate a profitable way of using the land without depleting its nutrients.

Education and Conservation

As part of its mission, STRI provides research and training opportunities for tropical biologists. During 1988 the institute supported more than eighty men and women at various academic levels, from undergraduates through senior scientists, representing fifteen nations. STRI also added a second three-year postdoctoral position in eco-physiology, a program established this year.

In addition to its own fellowship program, STRI received funding from the Smithsonian and the Exxon Corporation to enable Latin American students and senior scientists to conduct their own research or to participate in ongoing projects at various STRI facilities. As part of the program for senior Latin American scientists, Dr. Antonio Brack-Egg from Peru used the resources of the STRI Library for his book on Peruvian fauna. Dr. Noris Salazar, a specialist in bryophytes at the University of

Panama, continued her work with two students on the preparation of a flora of lichens and mosses of Barro Colorado Island. Dr. Salazar's project is a sequel to her university course offered during 1987.

STRI's educational program includes weekly public group tours to Barro Colorado Island. To enhance the experience of Spanish-speaking visitors, this year STRI published a Spanish edition of its guidebook *A Day on Barro Colorado Island, Panama*. This book provides information on the fifty-four stations along the island's nature trail and explains important characteristics of lowland tropical forests.

STRI continues to collaborate with international and local groups to promote conservation of marine and terrestrial tropical environments. Because of its biological diversity and proximity to the city, Panama's Soberania National Park is an important research site for the international scientific community, and its protection and access are essential to the success of the long-term research efforts in the area. Toward this end, STRI collaborated this year with Panama's National Association for Conservation of Nature, a private, nonprofit organization, and the Institute for Natural and Renewable Resources, a government agency, in extensive repairs to the Pipeline Road through the park. This work was funded in part by the James Smithson Society.

Facilities Development

During the past year STRI continued its program of facilities improvement. At Tivoli, construction of the Earl Silas Tupper Research and Conference Center, a state-of-the-art laboratory facility and auditorium with adjoining rooms for exhibits and meetings, nears completion and is on schedule for an opening in 1989. On Barro Colorado Island, new dormitories, a dining hall and kitchen, and a seminar hall are well under way. A new dormitory and associated offices and laboratories have been completed in Gamboa.

At Naos, renovation is progressing for the new molecular evolution program. One just-completed laboratory will be available for work on the molecular genetics of enzymes, and another will be used for research on DNA. A site convenient to other STRI facilities has been selected for the new Naos dormitory, and bids for its construction will be advertised soon. Negotiations are under way with the Kuna Nation for a new site for the San Blas marine station in the Caribbean.

STRI has also successfully negotiated with the Pana-

manian Institute for Hydroelectric Resources and Electrification for the use of a new field station in the montane wet forest at the Fortuna hydroelectric project watershed in western Panama. Simple office and laboratory space and fully equipped living facilities are available to individual scientists and small groups wishing to carry out studies in this unique environment.

Staff Changes

Dr. Eric A. Fischer was appointed deputy director of STRI in July 1988. Dr. Fischer is an evolutionary biologist specializing in the study of reproductive patterns and behavior. He was an assistant professor in the animal behavior program at the University of Washington and last year worked with the U.S. Senate Budget Committee as a Congressional Science Fellow sponsored by the American Association for the Advancement of Science.

Dr. Fischer replaces Dr. James R. Karr, who accepted an endowed chair at Virginia Polytechnic Institute and State University in Blacksburg, Virginia.

MUSEUMS

Tom L. Freudenheim, Assistant Secretary for Museums

Anacostia Museum

Established more than twenty years ago, the Anacostia Museum has evolved into a national resource for diffusion of knowledge about Afro-American history and culture. Located in the historic Fort Stanton Park in southeast Washington, D.C., the museum mounts art and history exhibitions, conducts scholarly research on Afro-American history and culture, and produces programming for an audience of children and adults who are empowered by increased knowledge of African-American creativity.

Exhibitions

More than 30,000 visitors passed through the doors of the museum to see "Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities, 1740-1877," an exhibition that opened in October 1987. The exhibition drew record numbers of visitors during its stay, which was extended to the end of October 1988. Historian Edward Smith unearthed the artifactual history of the black church, which emerged as an independent institution when black ministers seceded from segregated congregations. The exhibition shows that black churches were arenas of rejuvenation and self-pride for communities bereft of mainstream social service institutions. The pathos of the black church's struggle for self-determination in America was captured in the exhibition installation with original church pews, hymnals, photographs, and tattered frocks of itinerant preachers. Perhaps just as important is the exhibition catalogue, which provides a visual record of the exhibition and makes a well-documented contribution to Afro-American religious history.

Also in 1988 historian Portia James and other staff members continued research and planning for the exhibition "The Real McCoy: Afro-American Invention and Innovation, 1619-1930," scheduled to open in May 1989. The exhibition and catalogue will trace the pivotal role of Afro-American inventiveness from the Colonial period of agricultural production to the late nineteenth- and early twentieth-century period of modern industrial innovation.

Several other promising exhibitions were planned in 1988. An exhibition of works by artists in the District of Columbia Art Association is scheduled to open in January 1989. Research continued for an exhibition of the works of P. H. Polk, a noted black photographer whose prints vividly record the folkways of the rural South. Research and planning began on an exhibition titled "The Health Problems of the Black Community," which will

explore the causes and cures of several diseases, including sickle cell anemia and AIDS, that afflict the black community with particular devastation. This exhibition will reflect the museum's responsibility and commitment to present contemporary community social problems.

Collections Management

The museum made significant progress in collections management and inventory of the permanent collection. A new Collections Management Policy Statement reflects the museum's expanded mission to collect, as well as to interpret, Afro-American history and culture. This statement focuses the museum's collecting on the preservation of black history. The statement also establishes procedures for the acquisition, accession, and inventory of artifacts. In 1988 the first computerized inventory of the museum's permanent collection was completed. The Anacostia Museum is now ready to collect Afro-American artifacts in a systematic manner.

Education and Public Programs

The Education Department increases the value of the museum's exhibitions by bringing elements of the curators' research to area schools and adult audiences. To support the exhibition on the black church, there were concerts by Joan Hillsman, Toshi Reagon, and the Eastern Senior High School choir and Lunch Box Forum lectures by Dr. Richard Powell and Rev. Clarence G. Newsome. The museum collaborated with the National Museum of American History to host a dramatic presentation by actor Michael W. Howell of the life and times of Richard Allen, first bishop of the African Methodist Episcopal Church. The department's in-service course for teachers brought experts on the history of the black church to the museum for a four-day teachers' workshop.

Perhaps most successful was "Conservation for the Layperson," a seminar for church historians, archivists, and other interested individuals on the techniques of conserving books, letters, clothing, paintings, furniture, and photographs. In panel presentations and talks, conservators from throughout the Smithsonian provided expert assistance. As a result of this seminar, an active group of people representing churches and community organizations now meets monthly at the museum.

Archives of American Art

The Archives of American Art, founded thirty-four years ago and a Smithsonian bureau since 1970, is a leading resource for research in American art history. Its collections, which include nine million items of primary documentation, cover a 250-year period and embrace every aspect of the visual arts. Through its central office in Washington and its five regional centers, the Archives serves thousands of graduate students, faculty members, curators, and independent historians each year. Its quarterly *Journal* is highly regarded in the profession, and its symposia have achieved a strong reputation for scholarly substance.

Acquisitions

The Archives added 180 collections to its holdings in 1988. The much-sought-after papers of Walter Pach, a painter and writer in New York and Paris during the first half of this century, were acquired a full twenty-five years after the first fruitless approach to his widow. Composed of nearly a thousand letters, together with diaries, sketchbooks, photographs, and rare exhibition catalogues, the collection is especially valuable as a revealing source of information on early twentieth-century modernism in Europe and America. In addition to important documentation on the 1913 Armory Show and other art exhibitions in New York, the papers include letters from Matisse, Brancusi, Duchamp, Diego Rivera, Bernard Berenson, Robert Henri, Arthur B. Davies, John Sloan, and a long list of other friends and colleagues.

The nineteenth century is well represented in the year's acquisitions in the papers of James L. Claghorn, a Philadelphia art patron and collector who corresponded with Frederic E. Church, John Kensett, Hiram Powers, and Worthington Whittredge; of Frederick MacMonnies, whose 1885 diary records his experiences as an art student in Paris; and of Francis Millet, including diaries, sketchbooks, and letters from his sister describing visits from Henry James, John Singer Sargent, and Mark Twain.

Hardly a year goes by without the addition of at least a few letters from Marsden Hartley, surely American art's most prolific correspondent. Twenty of them, all dating from the 1930s and 1940s, were donated in 1988. More than a hundred letters from Jean Dubuffet to an American collector and adviser touch on the market for his work in this country. Other artists represented by useful letters acquired this year are Cecilia Beaux, Kenneth Hayes Miller, David Smith, and Grandma Moses.

The Archives' oral history program covered an unusu-

ally broad generational range through taped interviews conducted with museum director John Coolidge, folk art dealer Jeffrey Camp, and artists Jennifer Bartlett, Isabel Bishop, Paul Cadmus, Chuck Close, Janet Fish, Kenneth Noland, and Susan Rothenberg. A videotaped interview with Seattle sculptor George Tsutakawa was also completed for the program.

Research

On the evidence of research conducted at the Archives, scholarship in American art history continues to flourish. Thirty-five hundred research visits were made to the six Archives centers in 1988. Twenty-five hundred rolls of microfilm were circulated through interlibrary loans, a substantial increase over figures for previous years.

Books, articles, exhibition catalogues, and doctoral dissertations are the concrete results of research. Among those published in 1988 with acknowledgments to the Archives are major studies of Washington Allston, Frank Duveneck, George Luks, Marsden Hartley, Georgia O'Keeffe, Philip Evergood, and Stuart Davis. Other publications dependent on Archives holdings included books on the early twentieth-century socialist magazine *The Masses*, expressionist painting in America, and Works Progress Administration posters.



Walter Pach's permit to work at the Louvre in 1912 is part of the extensive collection of the artist's papers acquired by the Archives of American Art in 1988.

Exhibitions and Education

The Archives lent selected items from its holdings to several museum exhibitions this year. Its own exhibition of documents from its official and unofficial records of the 1913 Armory Show opened at the Archives' new New York quarters in October 1988.

Archives education activities included three well-attended symposia: "The Coming of Modernism to Chicago, 1900-1940," held at the Art Institute of Chicago; "Art for the Record: Issues of Documentation and Contemporary Art," held at the Huntington Library in San Marino, California; and "Earthquake to Albright: Modernism in Northern California, 1906-1945," held at the California Palace of the Legion of Honor in San Francisco. On a smaller scale, the Archives' Washington office sponsored eight informal seminars devoted to discussions of work in progress by art historians and American studies scholars. The quarterly *Archives of American Art Journal* continued to publish articles based on research at the Archives, reports from the regional centers, and selected items from the collections.

Collections Management

The Archives completed the first phase of a three-year project to record all cataloguing information about its more than 3,000 collections in the Institution's on-line, computerized data base for archival, library, and other special collections. The project is funded by grants from the J. Paul Getty Trust and the Andrew W. Mellon Foundation. Funding from these grants also enabled the Archives to prepare two large and complex collections for research use, the papers of Rockwell Kent, and those of the art historian and curator William Ivins.

Staff Changes

Richard Murray resigned October 1, 1987, after having been director of the Archives since 1983. John Fleckner, director of the National Museum of American History Archives Center, served as acting director.

The inaugural year of the Arthur M. Sackler Gallery, the Smithsonian's new museum of Asian art, began with a change in leadership. Dr. Thomas Lawton resigned as director of the Sackler and the Freer Gallery of Art in order to pursue his research in the art of ancient China. He assumed the position of senior research scholar. Dr. Milo C. Beach, who had been assistant director of the Sackler Gallery, was named acting director. Dr. Beach is a scholar of the art of India, particularly Indian painting. Patrick H. Sears was named assistant director of the Sackler and the Freer for exhibitions and facilities. He continues to serve as head of the Department of Design and Installation.

International publicity on the building and the inaugural exhibitions greeted the opening of the Sackler, with a partial compilation of articles from magazines and newspapers filling a 2-inch-thick report. First-year attendance was projected at more than half a million visitors.

Among the distinguished foreign guests was His Excellency Yasuhiro Nakasone, former prime minister of Japan, whose country donated \$1 million toward the construction of the Sackler Gallery. Other notable visitors represented the People's Republic of China, the Republic of Korea, Sikkim, Singapore, Bahrain, Israel, Luxembourg, and the North Atlantic Treaty Organization.

Exhibitions

An important international loan exhibition of objects from the Shanghai Museum, "The Chinese Scholar's Studio: Artistic Life in the Late Ming Period," presented 120 rare paintings; sculptures; objects in ceramic, bamboo, and stone; and books. The exhibition, organized by the Asia Society Galleries in New York City, explored the world of a highly influential group of Chinese scholar-artists born near Shanghai on the Yangzi River delta during the late Ming dynasty, a period that spanned the late sixteenth and early seventeenth centuries.

To illustrate the type of environment that intellectuals of the period sought to create, the Sackler design staff built and installed a room adjacent to the exhibition that was intended to suggest the appearance of a scholarly retreat. It was fitted with paintings, books, and furniture drawn from private collections, including the estate of Arthur M. Sackler.

A contribution from the Boeing Company made possible a concert of traditional Chinese music during the exhibition. A grant from the *Washington Post* supported a variety of educational and public programs, including a

family guide to the exhibition, a teacher's workshop, and educational materials.

The gallery's first display of contemporary South Asian art showcased eleven large terra-cotta figures, representing Hindu deities and animals, which had been presented to the museum by the Indian Advisory Committee for the Festival of India and the development commissioner (handicrafts), government of India. Another selection of Indian objects, ranging from the thirteenth through the nineteenth centuries, displayed recent acquisitions in sculpture, painting, and the decorative arts.

Education

In a continuing effort to encourage the appreciation of Asian art among a broad range of visitors, the Education Department of the Sackler and Freer galleries established an advisory council to investigate plans and programs pertaining to accessibility. In its first year, the committee worked with groups representing hearing-impaired, visually impaired, and mentally disabled individuals. Using information gathered through special workshops and tours, the committee hopes to contribute to more enlightened decision making about accessibility in the museum.

Public programs in the Sackler's inaugural year, organized by the Education Department and advertised through the bimonthly calendar, drew enthusiastic crowds to the museum. Programming was designed to appeal to specialists and the general public alike; some events were aimed at those with well-developed interests and others were planned to tantalize the uninitiated with the rich panorama of Asian culture.

Highlights included musical programs by master sitarist Vilayat Khan; Wu Wenguang, accomplished performer on the *qin*, a seven-stringed zither that is the oldest Chinese plucked musical instrument; traditional vocal and instrumental musicians from Uzbekistan and Azerbaijan; and Pakistani master singer Salamat Ali Khan.

Among the events of interest to children was a popular storytelling program concentrating on Chinese, Indian, Persian, and Japanese folktales that related to images portrayed in the exhibition galleries. Other activities demonstrated traditional Chinese musical instruments and techniques from the Beijing Opera.

A public lecture series offered eighteen programs ranging from a talk about the design of the Sackler Gallery and its inaugural exhibitions to an exploration of "Arabic and Persian Calligraphy: Illuminating the Eye of the Soul." Overflow audiences attended the twelve Japanese and Indian films shown by the gallery this year.



Among the distinguished visitors to the Sackler Gallery in its inaugural year was His Excellency Yasuhiro Nakasone, former prime minister of Japan (center). Dr. Milo C. Beach, acting director (left), escorted Mr. Nakasone through the exhibitions.

Research

The Sackler Gallery sponsored its first scholarly conference, "Investigating Artistic Environments in the Ancient Near East," an exploration of evidence for the environments in which works of art were produced. Secretary Adams delivered opening remarks, and twelve scholars from institutions in the United States and Europe were featured. The conference was organized by Dr. Ann Gunter, assistant curator for ancient Near Eastern art, and was made possible through the generosity of Mrs. Arthur M. Sackler.

The Sackler and Freer jointly sponsored three additional scholarly programs drawing on the expertise of the galleries' staff and scholars from other institutions. These programs were "Ancient Sources of Metal in Asia, East and West," with speakers K. Aslihan Yener, a fellow at the Smithsonian Conservation Analytical Laboratory, and W. T. Chase, head conservator at the Sackler and Freer galleries; "The Depiction of Nature in Heian Period (794-1185) Manuscripts and Handcraft Ornament," by Professor Yasushi Egami of Sophia University, Tokyo, the 1988 Harold P. Stern Memorial Fellow; and "Recent Studies in Ancient Chinese Metallurgy and Bronze Cast-

ing Techniques," a symposium led by Hua Jue Ming, a professor at the Institute of History of Natural Science, Academia Sinica, Beijing.

Dr. Glenn Lowry, curator of Near Eastern art, received a grant from the Institute for Turkish Studies to conduct research in Istanbul on fifteenth-century Persian drawings. He completed the second and final year of a Smithsonian Scholarly Studies Grant to work on Timurid art and culture in preparation for the 1989 exhibition, "Timur and the Princely Vision: Persian Art and Culture in the Fifteenth Century."

Dr. Shen Fu, curator of Chinese art, received a Smithsonian Scholarly Studies Grant for an upcoming exhibition, "Chang Dai-chien: Synthesis and Transformation in Chinese Painting." Dr. Fu conducted research in China, Taiwan, Hong Kong, Japan, and India.

Ann Yonemura, assistant curator of Japanese art, traveled to Japan to study prints made during the Yokohama period (1860-70), a time when many foreign businessmen came to trade in that port city. Yonemura's research, which was conducted in preparation for a Sackler Gallery exhibition in 1990, was supported by a grant from the Daval Foundation.

Dr. Ann Gunter received a grant from the American Research Institute in Turkey for two months of study in that country. She also received grants from the Smithsonian Research Opportunities Fund to give papers at three scholarly conferences.

Louise Cort, museum specialist for ceramics, elected a year-long sabbatical leave to translate the diary of a seventeenth-century Japanese potter under a National Endowment for the Humanities Translation Grant and a Japan Foundation Professional Fellowship.

Wheeler Thackston of Harvard University completed a year's residency as a Smithsonian-Rockefeller Foundation Resident in the Humanities. George Michel, an art and architectural historian specializing in South Asia, began his residency as the new Smithsonian-Rockefeller Fellow.

Publications

Subscriptions to *Asian Art*, the quarterly journal published by Oxford University Press in association with the Sackler Gallery, reached 1,700 individuals and institutions after just three issues had been released. Introduced in September 1987, *Asian Art* continued in 1988 with issues on "The Art of Eating and Drinking in Ancient Iran" and the art of India.

Library

The library, one of the few at the Smithsonian that is open to the public without appointment, became a special member of the Research Libraries Group, using their Chinese-Japanese-Korean language capability. This national organization promotes the coordination of collection development among its members and offers improved access to collections through the computerized Research Libraries Information Network. The library grew by 1,521 volumes and added approximately 300 slides. The staff responded to more than 3,000 reference inquiries and handled more than 200 interlibrary loan requests. Colleen Hennessey was hired as the library's first full-time archivist to organize, maintain, and make accessible the archives of the Freer and Sackler galleries.

Conservation

The Technical Laboratory and the Oriental Art Restoration Studio moved from the Freer Gallery of Art to temporary quarters in the Sackler Gallery, where these departments will be housed until the Freer renovation is complete. In spite of this major disruption, the staffs conducted technical research on Persian and Indian paintings, Chinese bronzes, Chinese lacquer, and other materials; completed conservation on objects in the collections; and monitored the condition of works of art on loan.

A major effort was given to the restoration and conservation of a Japanese ceremonial palanquin made to carry the bride of a noble family to her wedding. This striking black-and-gold lacquer conveyance, acquired through the Smithsonian Collections Acquisition Program Fund in 1985, was the first purchase for the Sackler Gallery. The palanquin was placed on exhibition in the fall of 1988.

A collaborative effort by the Technical Laboratory staff resulted in a paper describing their work on a Chinese lacquer box in the Sackler Gallery collection. The paper was delivered at a meeting in Japan of the International Institute for Conservation of Historic and Artistic Works.

Acquisitions

An important pair of Japanese six-panel folding screens depicting the *Legend of Mount Oe*, by an anonymous artist of the early seventeenth century, was purchased through the Smithsonian Collections Acquisition Program Fund. Significant groups of twentieth-century Japanese

Conservation Analytical Laboratory

prints were added to the collection from several sources. Margot Paul Ernst and Henry Horowitz each donated works from their collections. Additional Japanese prints were transferred from the collections of the Hirshhorn Museum and Sculpture Garden and the National Museum of American Art.

Other additions to the Sackler Gallery collection included five hanging scrolls by the twentieth-century Chinese artist Chang Dai-chien and a mother-of-pearl box from India dating to the first decade of the seventeenth century. *Flower and Rock Arrangements in Pots*, an album of eight leaves by the Chinese artist Sun Kehong (1573–1610), was given by Karen Wang.

The Conservation Analytical Laboratory (CAL) is the Smithsonian's specialized research facility for wide-ranging aspects of the conservation and technical study of museum objects. Research is performed on the conservation-related properties of materials, the improvement of conservation treatment technology, and the extraction of historical information from the technical record of the materials being studied. Within these areas of expertise, CAL staff provide assistance and advice to specialists in other bureaus of the Smithsonian. CAL conducts a conservation training program that includes basic and advanced training, holds workshops and seminars, and provides information services to museum professionals and the general public.

Archaeometric Research

In this area of research, CAL scientists develop methods of chemical and physical analysis and apply these methods to museum objects and related materials to answer questions pertaining to anthropology or art history. To identify the place of origin of archaeological ceramics and clay resources and draw conclusions about historical trade patterns, for example, scientists can generate large amounts of analytical data on the chemical and mineralogical composition and the manufacturing methods of ceramic and clay artifacts. One such project led to a major outreach program. More than 1,000 chemical analyses of Hopi pottery were integrated with the stylistic analyses of these ceramics in order to develop and test models of the socioeconomic dynamics of the Hopi people during the period of the great migrations (ca. A.D. 1300). In a specially designed applied science course taught at the Hopi Junior/Senior High School in northeastern Arizona, CAL scientists used their own research methods and results to illustrate principles of scientific research design. In turn, the students spent three weeks during the summer at the laboratory and gained experience in using sophisticated equipment and evaluating experimental data.

In collaboration with the National Bureau of Standards, CAL staff used lead isotope analysis to characterize and identify Mexican lead ore sources, which are thought to have been used for glazes on Spanish-Colonial majolica ceramics. This demonstration of the use of New World raw materials for glaze production in the sixteenth century complements other ongoing work on the identification of the clay sources used in these ceramics.

Similar research projects, often involving international

collaboration, relate to the Old World. Examples include a major study of the production and distribution of Middle Eastern ceramics, which has interesting ramifications for understanding the diffusion of early ceramic technologies. Additional projects deal with the technological history of Far Eastern porcelains, stonewares, or glazes of Egyptian, Middle Eastern, and Far Eastern provenance.

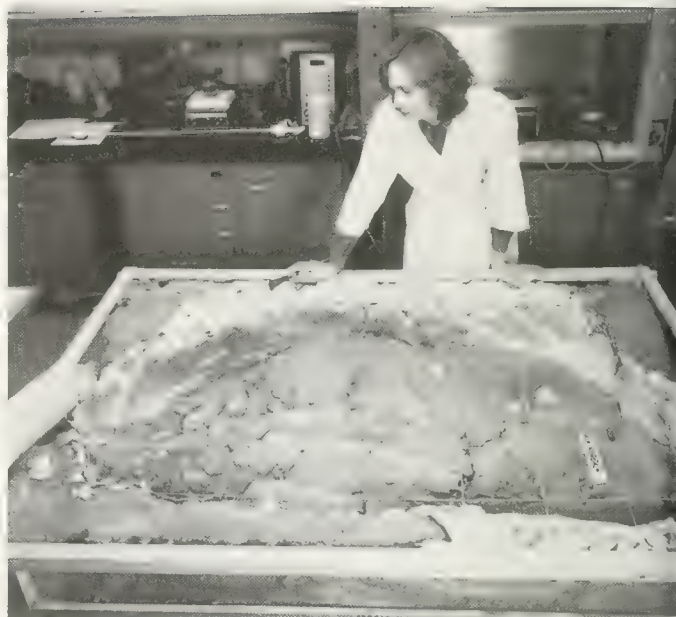
The laboratory is also conducting a project with the National Bureau of Standards and the National Museum of American Art on autoradiographic studies of paintings. Using autoradiography, a nondestructive technique for examining underlying paint layers, scientists have gained new insights into the painting techniques of turn-of-the-century artists Thomas W. Dewing and Albert P. Ryder. This project, strengthened by the recent hiring of a research art historian, involves a number of other examination and analysis techniques, which in combination provide new information on the creation process of these works.

In a new initiative, CAL staff members have established new ties with the Carnegie Institute to examine the organic phase of archaeological bone for traces of ancient disease and evidence of prehistoric diets and to develop a methodology of preparing unadulterated microsamples from collagen-derived amino acids for carbon-14 dating.

Conservation Research

The goal of the conservation research program is a fundamental understanding of the chemical and physical processes involved in the deterioration of museum objects and the factors that affect the rates of these processes. The development and testing of treatment technology to stabilize decaying objects is also a focus of conservation research. On request, CAL scientists perform chemical and physical analyses and technical examinations for conservators and curators throughout the Institution. The following examples illustrate the directions of conservation research.

The CAL's materials research engineer has designed and constructed innovative testing equipment to determine the mechanical properties of polymeric materials under environmentally controlled conditions. Conservators use this equipment in cooperation with the research engineer in a number of ways: to evaluate the effectiveness of materials and techniques used in lining paintings, assess the mechanical changes seen in aqueous treatment of paper objects, and monitor the effects of humidity, temperature, and aging on the mechanical properties of a



Postgraduate conservation intern Ann Boulton examines a group of 7,000-year-old plaster figures from Jordan at the Conservation Analytical Laboratory. Because of their extremely friable condition, these objects could not be excavated on site, but were shipped in the soil for consolidation in the laboratory prior to their recovery.

range of materials. In another area of mechanical research, results from testing and computer modeling help CAL researchers understand and predict the effects of shock and vibration on art objects during transport. Museum staff will use the resulting advice on packaging to ensure improved safety for these objects.

This year CAL conservators and scientists initiated a joint program to study the effects of the various cleaning solutions that conservators use to remove old varnish from paintings. In this project, which has important implications for the conservation of paintings, they will examine in depth the effects of cleaning solutions on the paint layer itself.

In the area of photograph conservation, a photographic scientist joined the CAL in the summer of 1988 and began research on deterioration phenomena in glass collodion negative plates, which form a significant part of most photographic collections.

CAL paper conservators are involved in research on various aspects of treatment through light bleaching and

on the effects of a range of aqueous and solvent treatments on the surface texture and strength of paper artifacts. Scientists continued a long-term project to evaluate accelerated aging tests for paper and other cellulosic materials. A reliable acceleration of reactions is essential in order to validate the efficiency and safety of preservation treatments.

A joint investigation of the effect of sulphuryl fluoride fumigant on a wide range of materials is nearing completion; the project has been supported by the Getty Conservation Institute. The CAL is investigating proteinaceous materials, such as wool, silk, leather, and glue, as well as textile dyes, while the Canadian Conservation Institute and the Getty Conservation Institute are conducting research on other materials.

Objects conservators used a variety of techniques to determine the composition, structure, and manufacture of 7,000-year-old Near Eastern plaster figures and to test the efficiency of a range of possible reinforcing agents for these objects. One conservator set up an on-site conservation laboratory for the excavations at Harappa, Pakistan, and worked on objects from the site. In textile conservation, research centered on the stability of certain pigment-binder systems used in textile printing and on the deterioration of weighted silk fabrics.

Conservation Training

The diversity of the CAL's conservation training program is reflected in the year's activities. The laboratory sponsored six one-year postgraduate internships for recently graduated conservators to work in conservation laboratories throughout the Smithsonian. A number of interns at various levels of experience and expertise were trained at CAL, including seven summer interns, two one-year graduate interns, and two of the above-mentioned postgraduate interns.

The first class in the CAL's Furniture Conservation Training Program will finish its third and final year in 1989. By that time they will have had twelve two-week sets of formal courses interspersed with return to their normal work and assigned home study. The students will then be required to complete an additional year as interns with a recognized furniture conservator. Because of the success of this program and the imminent completion of the formal course phase, a new group of students will be selected for a second class. As evidence of the program's success and the need for training in furniture conservation, all of the students who were interested in attaining

employment were able to find jobs in major American museums while they were attending the program.

The joint doctoral program with the Johns Hopkins University to train conservation scientists finished its first year. CAL scientists and conservators taught a course on the properties of organic materials encountered in museum collections and served as research advisers to the students. Next year, with more students enrolled, CAL staff will continue to act in this capacity.

As in previous years, the CAL organized specialty courses for practicing conservators. CAL staff and outside lecturers taught courses on a wide variety of subjects, such as the identification of natural and early synthetic dyes on historic textiles; coatings and colorants for furniture; the technology of ancient jewelry; and the deterioration and conservation of stone.

The laboratory's information program continues to provide specialized bibliographic and reference support to professionals in the Smithsonian and other museums. Online access is maintained to the conservation literature data base of the Conservation Information Network (CIN), an international collaborative venture of which the CAL is a contributing member. CAL staff also responded to questions about conservation from the general public.

Cooper-Hewitt Museum

In the physical world that surrounds us, design is a universal human activity. Most fundamentally, it entails individual attempts to solve problems in a social context. Design can impart, organize, and communicate values. Since the Industrial Revolution, design has often referred to the collective disciplines of separately trained professional groups who work for themselves or others, such as architects, landscape architects, city planners, engineers, industrial and product designers, interior and theatrical designers, textile and fashion designers, and graphic designers.

Too often, design is dismissed or discounted as the visible envelope or surface packaging of a functional product or structure. Too rarely, it is appreciated as an ability to organize the production and use of the physical matter of our lives. Since its designation as the Smithsonian Institution's National Museum of Design in 1968, the Cooper-Hewitt Museum has been an internationally acclaimed pioneer in the innovative exploration of both the processes and the products of human design and art.

Collections

With more than 167,000 objects in its wide-ranging permanent collections, the Cooper-Hewitt is one of the Smithsonian's most active collection centers. The museum puts objects to work as aggressively as possible: Forty-four items were lent to thirteen other museums in just the first six months of 1988, during which time the museum permanently acquired 461 items (78 by purchase and 383 by gift) and borrowed 507 objects from forty-three lenders for temporary exhibitions.

Among the year's permanent acquisitions, the most outstanding was a group of 1,488 sheets representing more than 250 textile and wall-covering patterns by more than fifty designers affiliated with the Wiener Werkstätte during the early twentieth century. Unique in the world outside of Vienna, this material represents a major strengthening of twentieth-century holdings in the Department of Drawings and Prints. Its purchase was made possible, in part, by a grant from the Regents Collections Acquisitions Program.

Collections that are growing and working at this rate obviously require continuous conservation and data management efforts. The museum's conservators treated more than 460 objects in the first three quarters of 1988. The application of current data processing technology to such collections-related activities as inventory and loan management continued to evolve in all curatorial departments throughout the year.

International Audiences

New York is an international design capital, and Cooper-Hewitt audiences and interests reflect an increasing international awareness of the significance of design's past, present, and future. The museum welcomed a visit from a U.S. Information Agency-sponsored group of museum professionals from developing countries in 1987 and was the site for the signing of a historic Accord of Mutual Agreement and Exchange between the Industrial Designers Society of America and the Society of Soviet Designers. The museum was also host to King Carl XVI Gustaf and Queen Silvia of Sweden, who toured the exhibitions, "The Triumph of Simplicity: 350 Years of Swedish Silver" and "Versailles: The View from Sweden," both of which were organized exclusively for the Cooper-Hewitt. Administrative and curatorial colleagues from Czechoslo-



Three vases, c. 1902-20, from the William and Marcia Goodman collection in the Cooper-Hewitt Museum featured in the publication *American Art Pottery*.

vakia and West Germany were among those greeted during the year. Events with a local flavor included the December 1987 meeting of the New York State Council on the Arts and a reception for the members of the New York City Museums Council.

A sampling of this year's exhibition themes affirms the international scope of the Cooper-Hewitt's work and suggests the diversity of design creativity at different times and in different places. These themes included the career of the twentieth-century architect Joseph Urban in Vienna and New York; the colorful and inexpensive household ceramics produced for Germany's Weimar Republic; the influence of Versailles on late seventeenth- and early eighteenth-century Swedish architecture; the origins and influence of the American arts and crafts movement; the history of European printed textiles; and theatrical designs from three centuries of Paris Opera productions.

The year also brought preparations on an international scale for three major exhibitions scheduled for 1989 and 1990. "Courts and Colonies: The William and Mary Style in Holland, England, and America" is being coproduced with the Carnegie Museum of Art, Pittsburgh, by a team of curators from all three countries. In celebration of the bicentennial of the French Revolution, "L'Art de Vivre: Decorative Arts and Design in France 1789-1989" incorporates the contributions of numerous colleagues from France. "Czech Architecture and Design 1900-1950" is an official exchange exhibition sanctioned by the government of Czechoslovakia, with guest curators from the national museums in Prague. It is being organized by the Cooper-Hewitt in association with Montreal's Canadian Center for Architecture.

Public Education

The museum sent study tours to Los Angeles, Miami, and Venice, Italy, and planned itineraries for future explorations in central and eastern Europe and the Netherlands. More than 5,000 students attended courses, symposia, workshops, and lectures in the international design arts at the museum. Byzantine, Italian, French, English, Russian, Japanese, and American topics were among the offerings this year. A special evening focused on questions relating to industrial design for global markets and the status of American productivity in this increasingly competitive area. Summer studies in London were available under the auspices of the master's-degree-level program that the Cooper-Hewitt and Parsons/New

School continue to offer as a unique training program for future decorative arts scholars and curators.

International and Local Support

As the offerings and audiences are international, so are the origins of the Cooper-Hewitt's financial support. In 1988, for instance, grants and in-kind gifts were received from sources such as the Smithsonian Special Exhibition Fund, British Airways, KLM Royal Dutch Airlines, Shell Oil Company Foundation, Sotheby's, and the Dutch American West-India Company Foundation. The largest grant in the museum's history was received from France's Comité Colbert, a consortium of seventy leading French firms, and Air France agreed to donate air-freight services for "L'Art de Vivre." Corporations such as SONY, Laura Ashley, Brunschwig & Fils, Inc., J. P. Stevens & Co., Inc., Mitchell Energy & Development Corporation, Gerald D. Hines Interests, Hearst Magazines, and Potlatch Corporation became Corporate Patrons and made financial gifts in support of specific projects or as contributions to meet a three-year challenge grant from the Andrew W. Mellon Foundation for a permanent research endowment. Individual members generously responded to a special appeal in that campaign, and the William Randolph Hearst Foundation and James Smithson Society each provided matching funds for the same purpose.

All of the museum's publications are produced with private funds. This year marked the publication of *American Art Pottery*, supported in part by Marcia and William Goodman and the New York State Council on the Arts. A handsome gift from the Port Royal Foundation made possible the catalogue for *Versailles: The View from Sweden*, and the J. M. Kaplan Fund provided a grant to help absorb the costs of the exhibition and accompanying publication on the work of the German architect Erich Mendelsohn.

The Decorative Arts Association, a group of collectors and others with special affinity for the Decorative Arts Department, also raised funds for its future activities.

Support of this sort, in addition to annual allotments from the Institution and from Congress, provides the means for the museum to serve its growing public. In response, that public has provided support in the form of admissions and membership fees. The number of visits for the year is estimated at 150,000. Twelve hundred members crowded into the garden for the annual members' garden party in June. On the next evening 7,000 visitors of every age and background arrived to celebrate

the tenth anniversary of New York's world-famous Museum Mile, with Mayor Edward I. Koch and New York State Council on the Arts Chairman Kitty Carlisle Hart presiding over the opening ceremonies.

Staff Changes

Harold Pfister served as acting director of the museum during the year. At year's end Dianne Pilgrim, chairman of the Brooklyn Museum's Department of Decorative Arts, was appointed director.

As the year began, Dr. Thomas Lawton stepped down after a decade as director in order to pursue his research in the art of ancient China. He assumed the position of senior research scholar. Dr. Milo C. Beach, a specialist in the painting of India, was named acting director of the Freer and the Arthur M. Sackler Gallery. Dr. Beach had been assistant director of the Sackler Gallery.

Much of the staff effort at the Freer Gallery this year was aimed at preparing the world-renowned collection of Asian and turn-of-the-century American art for a major construction and renovation project that is expected to take more than three years. For the safety of the collection and for the convenience of gallery visitors, the Freer closed to the public on September 6, 1988, for the duration of the project. All staff moved to the Sackler Gallery.

The renovation is planned in four phases. In the first phase, all work will be carried out below the gallery level. An exhibition gallery will be constructed to provide staff and public access between the Freer and the Sackler. A new elevator between the Independence Avenue level and the exhibition galleries will make the building accessible to visitors with mobility impairments. Space for art conservation and technical research will triple, and facilities for art storage will expand by 70 percent.

Later stages of the project will involve restoration and repair to the gallery level, the auditorium, and the exterior, followed by reinstallation of the collection. Work on the gallery level will preserve and restore the original appearance of the building, which is listed on the National Register of Historic Places. The north foyer (Jefferson Drive) will emerge as the grand public entry, as the building's architect, Charles Platt, intended. The Gallery Shop, now located in the foyer, will be moved to the ground level.

Repairs to and restoration of eighteen exhibition galleries will include new glass ceilings copied after the original ones. A new artificial lighting system will complement the generous natural light in the galleries. Gallery walls will be replastered; marble flooring and limestone walls will be repaired; and metal architectural detailing will be restored. The courtyard, which will be excavated during the first phase of the project, will be returned to its original appearance.

In preparation for the renovation project, an inventory was conducted and the collection was moved to the exhibition galleries, which have been adapted for storage during construction. An independent temperature and humidity control system has been devised to maintain a stable environment.



A late fifteenth- to early sixteenth-century Ottoman Turkish bowl of silver and gilt added to the Freer Gallery's Near Eastern collection in 1988.

P. Stern Fellow, conducting research on Japanese sutras of the Heian period in the Freer collection.

Acquisitions

A pair of illustrated narrative handscrolls depicting the story of *Tamamo-no-mae*, by Yasunobu (Shichizaemon), a Japanese painter of the seventeenth century, was purchased for the collection. Another addition to the Japanese collection, an eighteenth-century hanging scroll by Tsukioka Settei, was given by Elizabeth Gordon Norcross. A late fifteenth- to early sixteenth-century Ottoman Turkish bowl of silver and gilt was added to the Near Eastern collection. Four hanging scrolls, a handscroll, and a Yuan dynasty (1280–1368) ceramic incense burner were purchased for the Chinese collection.

Research and Education

Study of the Freer's American collection continued under Dr. Linda Merrill, assistant curator of American art, and three visiting students. Dr. Merrill completed the manuscript for *Dwight William Tryon: Paintings in the Freer Gallery of Art*, a catalogue to accompany the exhibition scheduled to open in 1992. Dr. Merrill was awarded a Regents' Publication Fellowship for the preparation of her manuscript, *A Pot of Paint: Whistler v. Ruskin*. This critical analysis and the reconstruction from contemporary newspaper accounts of the transcript of the libel trial of 1878 will be published by the Smithsonian Institution Press.

John Siewert, a Smithsonian Fellow from the University of Michigan, continued his research on the Whistler Nocturnes; Victoria Corbeil, a Smith College-Smithsonian Intern, was in residence to study Abbott H. Thayer; and Jim Ganz, a Williams College intern, conducted research on Whistler prints. Professor Yasushi Egami of Sophia University, Tokyo, was in residence as the Harold

Hirshhorn Museum and Sculpture Garden

The Hirshhorn Museum and Sculpture Garden, the Smithsonian Institution's museum of modern and contemporary art, maintained an active exhibition schedule and acquisition program this year. Films, concerts, symposia, tours, and other educational activities supported these programs. The museum's departments of conservation, registration, photography, and the reference library continued to offer technical support to staff and scholars.

Exhibitions

Two complementary, simultaneous exhibition series that offer an intimate experience with contemporary art were inaugurated this year. The Directions series, which focuses on small-scale solo exhibitions, highlighted the work of Joel Shapiro, Sherrie Levine, and Robert Cumming. A 1,572-square-foot gallery on the museum's third floor was redesigned to accommodate these single-artist

exhibitions. The WORKS series, which features temporary installations created for the museum's building and grounds, is the only ongoing program of its kind in a major American museum. Sol LeWitt, the team of Kate Ericson and Mel Ziegler, and Vernon Fisher created site-specific pieces this year. Both series and the accompanying publications were made possible, in part, through the Smithsonian Special Exhibition Fund.

Three major exhibitions were organized by Hirshhorn staff members this year, with catalogues published or distributed by the Smithsonian Institution Press. With support from the Smithsonian Special Exhibition Fund, the Hirshhorn mounted "Russian and Soviet Paintings, 1900-1930: Selections from the State Tretyakov Gallery, Moscow, and the State Russian Museum, Leningrad." This was the first American exhibition of early twentieth-century works by Russian and Soviet artists drawn exclusively from the two most important museums in the Soviet Union specializing in works from that period. The exhibition was selected by director James T. Demetrian and chief curator for exhibitions Dr. Edwin Rifkin. "Alberto Giacometti 1901-1966," organized by associate curator of sculpture Valerie J. Fletcher, opened in the fall of 1988 and then traveled to the San Francisco Museum of Modern Art. Grants from Credit Suisse and the Xerox Foundation, with supplemental assistance from Balair and the Pro Helvetia Foundation and an indemnity from the Federal Council on the Arts and the Humanities, made this retrospective possible. "Different Drummers," organized by curator of prints and drawings Frank Gettings, focused on highly individual and diverse art in many media by nine contemporary artists.

Other exhibitions included "A Quiet Revolution: British Sculpture since 1965," sculpture and works on paper by six artists, organized jointly by the Museum of Contemporary Art, Chicago, and the San Francisco Museum of Modern Art. The Hirshhorn Museum was the only American venue for "Expressiv: Central European Art since 1960." This exhibition of paintings, sculptures, mixed-media pieces, and photographs by artists from Austria, Czechoslovakia, Hungary, Poland, and Yugoslavia was first shown at the Museum of Modern Art in Vienna.

Smaller exhibitions featuring works from the permanent collection included "Sea and Shore: Selections from the Permanent Collection" and "The New Spirit: Artist-Organizers of the Armory Show," both organized by associate curator of painting Dr. Judith Zilczer.

Loans from the Hirshhorn Museum were featured in retrospective exhibitions honoring several artists. Two of



On September 22, 1988, Mrs. Eduard Shevardnadze (second from right), wife of the Soviet foreign minister, toured the Hirshhorn Museum's exhibition of Russian and Soviet paintings, 1900-30. With her are Museum Director James Demetrian (left, with an interpreter) and Mrs. Yuriy Dubinin (far right), wife of the Soviet ambassador to the United States. After the tour, Mrs. Shevardnadze crossed the Mall to preview the "Crossroads of Continents" exhibition at the Museum of Natural History. (Photograph by Lee Stalsworth)



Ernst Barlach's *Seated Girl*, 1937, is one of the major works from the Marion L. Ring Estate given to the Hirshhorn Museum and Sculpture Garden.

Charles Demuth's popular watercolors, *Circus* and *Vaudeville: Many Brave Hearts Are Asleep in the Deep*, were part of a touring exhibition organized by the Whitney Museum of American Art in New York City. Two of Pablo Picasso's works on paper from the recently acquired Joseph H. Hirshhorn Bequest traveled to West Germany for inclusion in a show about the artist's classical period. Charles Sheeler's oil painting, *Staircase, Doylestown*, was part of a comprehensive exhibition that showcased works in many media executed by this artist. Coordinated by the Museum of Fine Arts, Boston, the exhibition also traveled to New York City and Dallas. Anselm Kiefer's two-panel painting, *Das Buch*, has been seen throughout the United States in a critically acclaimed exhibition focusing on this painter's unusual style and subject matter.

Among the more than seventy works lent to museums in this country and abroad were several borrowed for shows that dealt with artistic endeavors of the 1950s. In "The Figurative Fifties," an exhibition at the Newport Harbor Art Museum in California, Bob Thompson's *La Fete* and Fairfield Porter's *Katie and Anne* depicted the style known as New York figurative expressionism. At the Paine Art Center in Oshkosh, Wisconsin, Joan Brown's *Nun with Staffordshire Terrier* and Elmer Bischoff's *Houses and Hills* illustrated another regional style in the exhibition, "Painting from the San Francisco Bay Area." Overseas, this trend to analyze the art of the 1950s continued with the Berlinische Galerie's "Documenta II," to which the Hirshhorn's stainless steel *Sentinel II*, by David Smith, and large canvas *Delaware Gap*, by Franz Kline, were important contributions. The new Nagoya City Art Museum in Japan included Edward Hopper's *City Sunlight* and Willem de Kooning's *Woman* in its ambitious inaugural exhibition. Other loans, to an exhibition organized by the International Sculpture Center that dealt with American industrialization from 1920 to 1930, were part of a four-venue tour of major Japanese cities. Finally, the Hirshhorn's *Study for a Portrait of Van Gogh III*, by Francis Bacon, was part of an exhibition organized by the British Council in London that traveled to the Soviet Union.

The Hirshhorn Museum's acquisition funds were handsomely increased by a gift from the Holenia Trust, established by the late Joseph H. Hirshhorn for the advancement of art. The museum also received a grant from the Lannan Foundation under its new contemporary art acquisitions program for emerging artists. Two museum facilities were named in recognition of the support of generous donors. The pool in the Sculpture Garden has been designated the Jacob and Charlotte Lehrman Foundation Pool and the auditorium now bears the name the Marion and Gustave Ring Auditorium.

Education

The education department continued to bring the museum's exhibitions and permanent collection alive for audiences ranging from schoolchildren to senior citizens. A docent symposium, "Pulse: A Practicum on Current Ideas and Approaches in Museum Education," focused on museum outreach endeavors. The museum's ninety-five docents conducted tours for 18,000 visitors during the year. Programs for area schools attracted both elementary- and secondary-school students. The summer intern program

National Air and Space Museum

gave five undergraduate students much-desired museum experience. Regularly scheduled free films about artists, films by artist-filmmakers, and a special program of films for young people were vital aspects of the museum's outreach to the public.

Acquisitions

The museum's permanent collection was enriched by twenty-six gifts and twenty purchases. Among the recent acquisitions are seven major works from the estate of Marion L. Ring, the most significant art donation the museum has received to date other than through Joseph H. Hirshhorn's benefactions. Works in the Ring gift include a wood sculpture by Ernst Barlach and paintings by Milton Avery, Stuart Davis, Adolph Gottlieb, Giorgio Morandi, and Edouard Vuillard. Other important additions to the collection were nine works from the Mary and Leigh Block Collection, including sculptures by Jacques Lipchitz, Marino Marini, and Auguste Rodin and a painting by Daniel Vladimir Baranoff-Rossiné. Other newly acquired paintings include: *Everything Is Going Well* (1981), by Sandro Chia; *Untitled* (1988), by Moira Dryer; *Ancient Wall* (1976), by Philip Guston; *Landscape* (1987), by Robert Moskowitz; *In the Dark* (1987), by Elizabeth Murray; *Sanctuary* (1988), by Gerhard Richter; and *Thursday* (1960), by Jack Tworkov. Among the notable sculpture acquisitions are *Spanse* (1987), a paint-infused bronze by Nancy Graves, and *Timber's Turns* (1987), a wood sculpture by Martin Puryear.

The National Air and Space Museum, which houses the largest collection of historic air and spacecraft in the world, is the nation's center for exhibition, education, and research in the history of the science, technology, and culture of aviation and spaceflight. This year the museum took steps to make the contributions by other nations to space exploration more visible. It also emphasized the development of long-range plans for exhibits that will examine the history of aviation and space technology in its broader social and scientific contexts. The museum recorded more than nine million visits in 1988.

Research

The museum's three curatorial units conduct a wide range of research projects. Research in the Department of Aeronautics focuses principally on the history of aviation technology. The Department of Space Science and Exploration carries out studies on the history of astronomy, space science, and rocket and space technology. Scientific research on satellite remote sensing of the Earth and on comparative planetology is the emphasis of the Center for Earth and Planetary Studies.

The activities of resident staff members are augmented by the work of visiting scholars, who use the museum's singular collections of artifacts and documents to pursue their research interests. In 1988 Dr. John W. Fozard, a distinguished British aeronautical engineer and designer and past president of the Royal Aeronautical Society, held the Charles A. Lindbergh Chair of Aerospace History. His research at the museum was concerned with producing a definitive technical history of jet-powered lift flight (used by a class of fixed-wing aircraft that can operate from short runways and small ships). Dr. John A. Simpson of the Laboratory for Astrophysics and Space Research, University of Chicago, was appointed to the Martin Marietta Chair in Space History. Simpson, who was principal investigator on twenty-seven scientific spacecraft missions, conducted research at the museum to document his successful placement of a dust detector on the two Soviet *Vega* spacecraft to Comet Halley. Dr. Michael J. Neufeld of Colgate University came to the museum as the Verville Fellow to study the career of Wernher von Braun.

Museum staff members published two major reference works in 1988. *Air and Space History: An Annotated Bibliography*, compiled by curators Cathleen S. Lewis (Department of Space Science and Exploration) and Dr. Dominick A. Pisano (Department of Aeronautics), was

published by Garland Publishing. This book has been described by one reviewer as a landmark event for scholars. The year also saw publication of the definitive NASA *Historical Data Book*, Volumes II and III, written by Lin Ezell, the museum's assistant director for collections management.

Work has begun on the Smithsonian History of Aviation book series, under the general editorship of Dr. Dominick Pisano in collaboration with other aeronautics department curators and an international board of editors. The series will include monographs as well as reprints of classics, source documents, and translations.

It was a benchmark year in historical research and writing for several members of the Aeronautics Department. R. E. G. Davies won the Aviation/Space Writers Association Award of Excellence for the best nonfiction aviation book of 1987, *Rebels and Reformers of the Airways*, published by the Smithsonian Institution Press. Davies recently completed research for a book on the history of Lufthansa Airlines and is conducting research for three additional books. Dr. Von Hardesty was coeditor and translator of H. N. Finne's important biography, *Igor Sikorsky: The Russian Years*. Hardesty and Dr. Dominick Pisano jointly wrote the introduction to Thomas E. Simmons's *The Brown Condor*, a historical novel based on the life of John C. Robinson, an early black aviator. Robert C. Mikesch published the *Flying Dragons: The South Vietnamese Air Force*, one of the few historical works available on the air war in Vietnam.

Peter Jakab is completing work on *The Wright Flyer: A Study in the Process of Invention*, to be published in 1989 by the Smithsonian Institution Press. Robert van der Linden completed the manuscript for a forthcoming book on the Boeing 247, and Rick Lyes is coauthoring a book (with William R. Fleming) on the evolution of the small gas turbine aircraft engine industry in America.

In the Department of Space Science and Exploration, the Glennan-Webb-Seamans Project for Research in Space History, directed by Martin J. Collins, entered its second year. Project staff are working on archives preservation and conducting oral history interviews in support of their research on the administration and management of large-scale projects in the space program.

Also entering its second year was a collaborative project between the Space Science and Exploration Department and the Rand Corporation involving the archival preservation of unpublished papers related to the first decade of the corporation and the compilation of more than ten hours of videotaped interviews with Rand-associated pioneers in aerial and space-borne reconnaissance.

Curators Dr. Joseph Tatarewicz and Martin Collins are coinvestigators on the project.

The NASM-Johns Hopkins University Program in the History of Space Science continued, with the completion and submission to Cambridge University Press of *Shaping the Space Telescope: The Interpenetration of Science, Technology, and Politics*, by Dr. Robert W. Smith et al.

Dr. Allan A. Needell is conducting research on several fronts: the relations between physical scientists and the American military and civilian space programs; the career of Prof. Lloyd Berkner, first president of the Space Science Board of the National Academy of Sciences; and the study of cosmic rays and solar and terrestrial electromagnetic fields using rockets and spacecraft. Needell has also written an extensive introduction to be published in the 1988 reprinting of Max Planck's classic *Lectures on the Theory of Heat Radiation*.

Dr. Paul Ceruzzi completed a book on the history and present role of computers in aerospace applications, to be published next year by the MIT Press. The book will document the forthcoming permanent exhibition, "Beyond the Limits: Flight Enters the Computer Age" (for which Ceruzzi was curator), while treating the more subtle historical issues in greater depth. Ceruzzi also contributed to the forthcoming book *Computing before Computers* (Iowa State University Press).

Dr. David DeVorkin is completing *Spectacle in the Stratosphere*, a major book on manned scientific ballooning in the 1930s and 1940s. Derek W. Elliott is conducting dissertation research on the political influences in the development of early U.S. space policy.

Department curators have also been involved in university teaching. Needell and Smith planned and taught a graduate seminar on "The Organization of American Science since 1930" at the Johns Hopkins University, and Tatarewicz was named visiting assistant professor of history at the University of Maryland, teaching two courses, "Science and Technology in World History" and "History of Technology."

In the museum's Center for Earth and Planetary Studies (CEPS), basic research on the use of remote sensing of terrestrial and planetary surfaces continued, with emphasis on desert regions of Earth and structural land forms on Mars. Analysis of satellite images of Africa concentrated on determining changes that took place in Egypt, Mali, and Botswana over a nine-year period. Analysis of *Landsat* orbital images by Dr. Patricia Jacobberger showed that desert dunes in Mali and Botswana that are stabilized by vegetation do not migrate, but are subject to increased local erosion from lack of rainfall. Fieldwork

and samples taken in 1988 resulted in an increased awareness of climatic changes as a controlling factor of dune form and migration rate.

Dr. Ted Maxwell's investigations of the hyperarid desert core in the Western Desert of Egypt and the northern Sudan continued in 1988 with the mapping of sand sheet deposits in the area where the Space Shuttle Radar Experiment revealed buried drainage patterns in 1981. Comparison of images taken fifteen years apart has shown significant change in the desert surface. Large-scale ripples, 3 miles from crest to crest, were discovered in *Landsat* images and confirmed by field surveying. These features move up to 100 meters per year, transporting enormous volumes of sand. Joint work with Dr. C. Vance Haynes of the University of Arizona, who was a senior postdoctoral fellow at CEPS in 1987, helped refine prior estimates of dune migration rates in the region.

In November 1987, at an international conference in Paris sponsored by the Centre Nationale d'Etude Spatiales, Dr. Ted Maxwell and Constance Andre presented their results of using the French *SPOT* satellite data. The stereo capabilities of *SPOT* enabled them to define the location of a fault system in Saudi Arabia, which may be one of the largest known intracontinental faults.

Dr. Tom Watters used *Viking Orbiter* images of the Martian surface together with models of structural geology to deduce that folding of the near-surface crust has played a major role in the tectonic evolution of the planet. Analogous fold belts in the Columbia Plateau in Washington State are being studied to further define the role of folding and faulting. Additional Mars research by Dr. Ted Maxwell detailed the timing and nature of faulting episodes along the boundary between the southern, highly cratered hemisphere and the northern smooth plains. This work made it possible to identify a unique class of rimless impact craters, indicating a widespread zone of erosion or deposition early in Martian geological history.

Studies of Mars using data from the *Viking* Infrared Thermal Mapper experiment are planned to provide constraints on the size range of rocks exposed on the surface. These studies, by Dr. Jim Zimbleman and Robert Craddock, will be field-checked by studying analogous surfaces in the Mojave Desert.

Collections

In 1988 the museum completed a building at the Washington-Dulles International Airport to shelter part of the

collection that was previously out-of-doors. In addition to the space shuttle *Enterprise*, the building houses several historically important aircraft, including B-25, B-57, and B-17 bombers; an F-8U Crusader; and a Junkers Ju-52 transport plane. A Super Constellation transcontinental airliner has recently been acquired and is now at Dulles.

The staff at the museum's Paul E. Garber Preservation, Restoration, and Storage Facility in Suitland, Maryland, finished restoring the o8-2U Kingfisher seaplane, the Arado 234 German World War II jet bomber, and the Fowler-Gage wooden biplane. Restoration work was completed on the interior of the forward fuselage of the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima, and the full restoration of this important airplane is now being given high priority. Complete restoration of the ATS-6 satellite awaits only the treatment of the antenna meshing and final assembly. The Hubble Space Telescope's structural dynamic test vehicle, slated for exhibition in the museum's Space Hall, is being treated at the Garber Facility, as are several small artifacts that will figure prominently in the new aerospace computing gallery, "Beyond the Limits." Restoration has also begun on a World War II British Hawker Hurricane. Restoration efforts have been enhanced by the addition of a program in which volunteers with special skills work on restoration projects. Two new environmentally controlled storage units were constructed at the Garber Facility this year.

During 1988 the museum's archives acquired 115 collections, including materials related to the Bendix Air Races and Trophy, donated by Allied-Signal Aerospace Company; a collection from United Technologies Corporation; and personal papers, maps, charts, and memorabilia belonging to Arthur Raymond Brooks, who flew the World War I Spad XIII aircraft that is now in the museum's collection.

The museum's film archives acquired 800 films during 1988 from the Department of Defense Motion Picture Depository. Preservation efforts included duplication of a film on the Grover Loening Aircraft Company.

Two videodiscs have been added to the museum catalogue and are ready for public distribution. Videodisc 4 contains 50,000 images of U.S. Air Force activities prior to 1954 and includes the Air Force Art Collection; videodisc 6, assembled with the cooperation of the National Aeronautics and Space Administration (NASA), contains 100,000 images from all the U.S. lunar missions.

To provide better support for curatorial and collections management staffs, the museum is developing an interim



Craftsmen from the National Air and Space Museum's Paul E. Garber Facility prepare to suspend the *Voyager*, the first aircraft to fly around the world without landing or refueling, from the ceiling of the museum's South Lobby on November 20, 1987.

collections information system. This on-line inventory system, which will later be incorporated into the planned Institution-wide Collections Information System, will give the staff maximum computing power for recording information about objects in the collection and provide improved research and collections management capabilities.

Exhibitions

In December 1987, to mark the first anniversary of the first nonstop, nonrefueled flight around the world, the

museum opened "Voyager: Around the World without a Pit Stop." The exhibition has become one of the most popular at the museum. It features Dick Rutan and Jeanna Yeager's *Voyager* aircraft, together with photographs and a videotape of highlights of the flight.

"Horizons," a new art exhibition in the Flight and the Arts Gallery, features the extraordinary paintings and drawings of British artist Robert Taylor. Many of the thoroughly researched and meticulously detailed paintings and drawings are highly realistic portrayals of incidents that occurred during World War II.

The spirit of international cooperation is alive and well at the museum and is being fostered through an exhibition of full-scale and engineering test models of spacecraft developed by the European Space Agency (ESA). The exhibition, mounted with the cooperation of ESA, includes the *Giotto* spacecraft, which approached within 370 miles of Comet Halley in 1986 and obtained the first detailed images of a comet nucleus; the *Ulysses* spacecraft, which will be launched in 1990 into an orbit taking it over the heretofore unseen poles of the Sun; the *Hipparcos* satellite, which will carry an astronomical telescope designed to bring unprecedented accuracy to the determination of the positions and motions of the stars; and *Exosat*, a satellite that will study x-ray sources in our galaxy and beyond.

A team of five staff members led by Claudia Oakes continued its work on the new World War I gallery. This major project will address the historical theme of the genesis of air power in its larger social and political context. Work also began on a new exhibition to mark the 1989 centenary of the birth of Igor Sikorsky, the famed Russian-American aircraft designer.

In cooperation with the U.S. Customs Service, the museum produced an exhibition titled "The War against Drugs: Air Interdiction Program," which portrayed the agency's use of aircraft to prevent the airborne smuggling of illicit drugs into the United States.

As part of the museum's continuing effort to represent women in its exhibitions, an exhibition devoted to the history of "Women in Helicopter Aviation" was added to the Vertical Flight Gallery. This photographic display was produced in cooperation with Whirly-Girls, the international association of women helicopter pilots.

Public Events and Educational Programs

During the year the museum presented a wide selection of programs and events designed to educate, entertain, and involve the public in the museum. From the popular IMAX films shown in the Samuel P. Langley Theater to outreach programs for minority young people, the museum's public programs appealed to a cross section of the museum's audience. Lectures and seminars for scholars and specialists also drew on the rich resources of the museum's collections and research efforts.

The Office of Public Affairs and Museum Services continued to run the well-received thirteen-week "Fly-By-Night" series, intended to take advantage of the museum's late summer evening hours. The series included lectures, films, and other free activities for families.

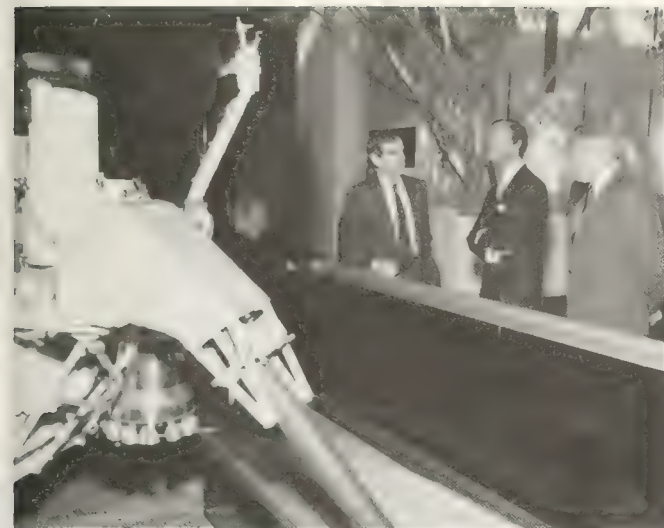
The office also coordinated the second annual nationwide photography contest, "Focus on Flight," adding special categories for young people and senior citizens. An exhibition featuring the prizewinning entries was installed in the Pioneers of Flight Gallery. At a press conference in May 1988, the museum announced the winners in its Race for Space Software Chase, a computer software competition among colleges and universities nationwide. The competition was sponsored jointly by the museum and by Apple Computer, Inc. The museum will install the winning entries in the new gallery, "Beyond the Limits: Flight Enters the Computer Age," which opens in May 1989.

On June 30 the Samuel P. Langley Theater welcomed the ten millionth visitor to see the film *To Fly*. Regina Doll of Thurmont, Maryland, was greeted on arrival by Dr. Martin Harwit, director of the National Air and Space Museum, and Stacy Mobley, vice-president for federal affairs of the Dupont Company, the film's sponsor. The five IMAX films commissioned by the museum—*To Fly*, *The Dream Is Alive*, *On the Wing*, *Living Planet*, and *Flyers*—continue to play to delighted audiences.

During the year the museum offered free to the public nine General Electric Aviation Lectures, twelve Monthly Sky Lectures in the Albert Einstein Planetarium, seven aviation film classics, eight space science fiction film classics, four lectures titled "Astronomical Enigmas: True Mysteries of the Cosmos" and delivered by scientists from the Smithsonian Astrophysical Observatory, five lectures on "The Universe in a New Light" by distinguished astrophysicists, and a well-attended, seven-part adult education course entitled "Investigating Modern Astronomy." The latter, presented in the Albert Einstein Planetarium, dealt with topics ranging from the use of a telescope to the large-scale structure of the universe. The annual Wernher von Braun lecture was given by Gen. Samuel C. Phillips (USAF, Ret.) and was called "Destination Space: Managing the U.S. Space Program." Dr. John W. Fozard gave the annual Lindbergh lecture on "The Engineering Elegance of Jumping Jets."

The museum marked the twenty-fifth anniversary of planetary exploration with a lecture by Dr. Carl Sagan, "Voyage to Venus: The Mission of Mariner 2"; a lecture by Dr. Jeff Plescia of NASA, "Exploring the Planet Mars"; and a video history symposium with pioneers of the planetary program entitled "Toward a Venus Encounter, 1962: The Organization and Execution of Mankind's First Mission to Another Planet."

Under the auspices of the Office of Cooperative Programs, the museum conducted a one-week workshop in



The Viking Lander, identical to the two that landed on Mars in 1976, was of particular interest to King Carl XVI Gustaf of Sweden on his early morning visit to the National Air and Space Museum on April 11, 1988. Accompanying the king were Director Martin Harwit (left) and Deputy Director Donald S. Lopez (right).

January on the history of aviation, spaceflight, and related technologies for twenty professors from the University of Maryland and Clemson University who are participating in the New Liberal Arts Program of the Sloan Foundation. A random-access videodisc and curriculum material based on the workshop will constitute an aviation module for courses on the history of technology in the New Liberal Arts Program.

In March the museum and the American Association of Museums cosponsored a two-day seminar, "Mutual Concerns of Air Museums." The seminar included lectures, behind-the-scenes tours, and workshops.

In April the museum sponsored an all-day seminar, "Blacks in Aviation: Three Historic Films." This event brought together for the first time an eminent group of historians and specialists to evaluate the contribution of blacks to aviation in the social and racial context of America from the 1920s through the 1940s. Among the invited guests were Gen. Benjamin O. Davis and the Tuskegee Airmen.

This year the Office of Volunteer Services recruited behind-the-scenes volunteers with wood- and metalworking skills to undertake restoration projects at the Garber

Facility. The office also initiated a series of summer "highlights" tours of the museum designed for a school-age audience.

The museum began a new minority outreach program that brings to Washington, D.C.-area public schools the relatively unknown story of the contributions of blacks to American aviation. To follow up and reinforce the classroom program, the students may tour the museum with their classes. The tour emphasizes the "Black Wings" exhibit about black aviators and astronauts and features an IMAX film showing. The program has visited more than thirty area schools this year; more than half of these visits have resulted in group tours of the museum.

For Black History Month in February, the museum offered "Flying against Tradition: Blacks in Aviation." This program included lectures titled "Blacks in Space Flight," by Derek Elliott, assistant curator in the Department of Space Science and Exploration; "From These Beginnings," by Elwood Driver, director of NASA's Aircraft Management Office; and "Memoirs of a Black Fighter Pilot," by Louis R. Purnell, a former National Air and Space Museum curator.

To mark Hispanic Heritage Week in September, the museum offered free recorded tours in Spanish and Portuguese. Also featured was an evening lecture by astronaut Sidney M. Gutierrez (Major, USAF) called "Return to Flight."

The museum's Office of Publications produced *The Official Guide to the National Air and Space Museum*, published by the Smithsonian Institution Press. The office also coordinated publications projects for other museum departments.

The museum's Education Resource Center opened on January 12, 1988, with astronaut Jon McBride as the guest speaker. More than 1,300 teachers visited the center, which provides air-and-space-related materials for teachers, during its first six months of operation.

The Office of Education produced three new publications this year: *Discovery*, a curriculum package for kindergarten through third grade, produced in cooperation with NASA; 5, 4, 3, 2, 1, a guide for the very young visitor; and *Skylines*, a quarterly newsletter for educators. Kasse Andrews-Weller of the Office of Education received a Charles A. Lindbergh Foundation grant to develop a slide kit, "The Fragile Earth."

The museum conducted fifteen teacher workshops on a wide variety of subjects during the year. An "Exploring Frontiers" workshop was presented in collaboration with the National Science Foundation. Six workshops were funded by the Women's Committee of the Smithsonian

National Museum of African Art

Associates, and two were offered for continuing education credit through Oklahoma State University.

In collaboration with the Anacostia Museum, District of Columbia Public Schools, and the National Urban Coalition, the museum held several workshops on the grounds of the Anacostia Museum involving building, flying, and launching hot air balloons, kites, and rockets.

Air & Space/Smithsonian

The bimonthly magazine *Air & Space/Smithsonian* marked its second anniversary by creating a "Space Explorers" poster for insertion in the April/May 1988 issue. The poster, a compilation of photographs and data on all 204 astronauts and cosmonauts from nineteen countries who had orbited the Earth by the end of 1987, was presented to the science adviser to the president and to the Soviet Academy of Sciences. In addition to the 390,000 copies of the poster that were inserted in *Air & Space/Smithsonian*, 100,000 copies were purchased for distribution by NASA; 60,000 were inserted in the magazine *Soviet Life*, published by the Soviet government for readers in the United States; and another 60,000 (in Russian translation) were inserted in the magazine *Amerika*, published by the U.S. Information Agency for readers in the Soviet Union. The shared poster represents a first in editorial collaboration between these two magazines, which are published under the terms of a bilateral governmental agreement.

In further recognition of international space efforts, *Air & Space/Smithsonian* published "The Chariot of Indra" on the space program of India and "Balloons over Venus" on the Soviet *Vega* mission to the planet Venus and Comet Halley. For the latter article, the magazine commissioned five paintings by astronomical artist Ron Miller.

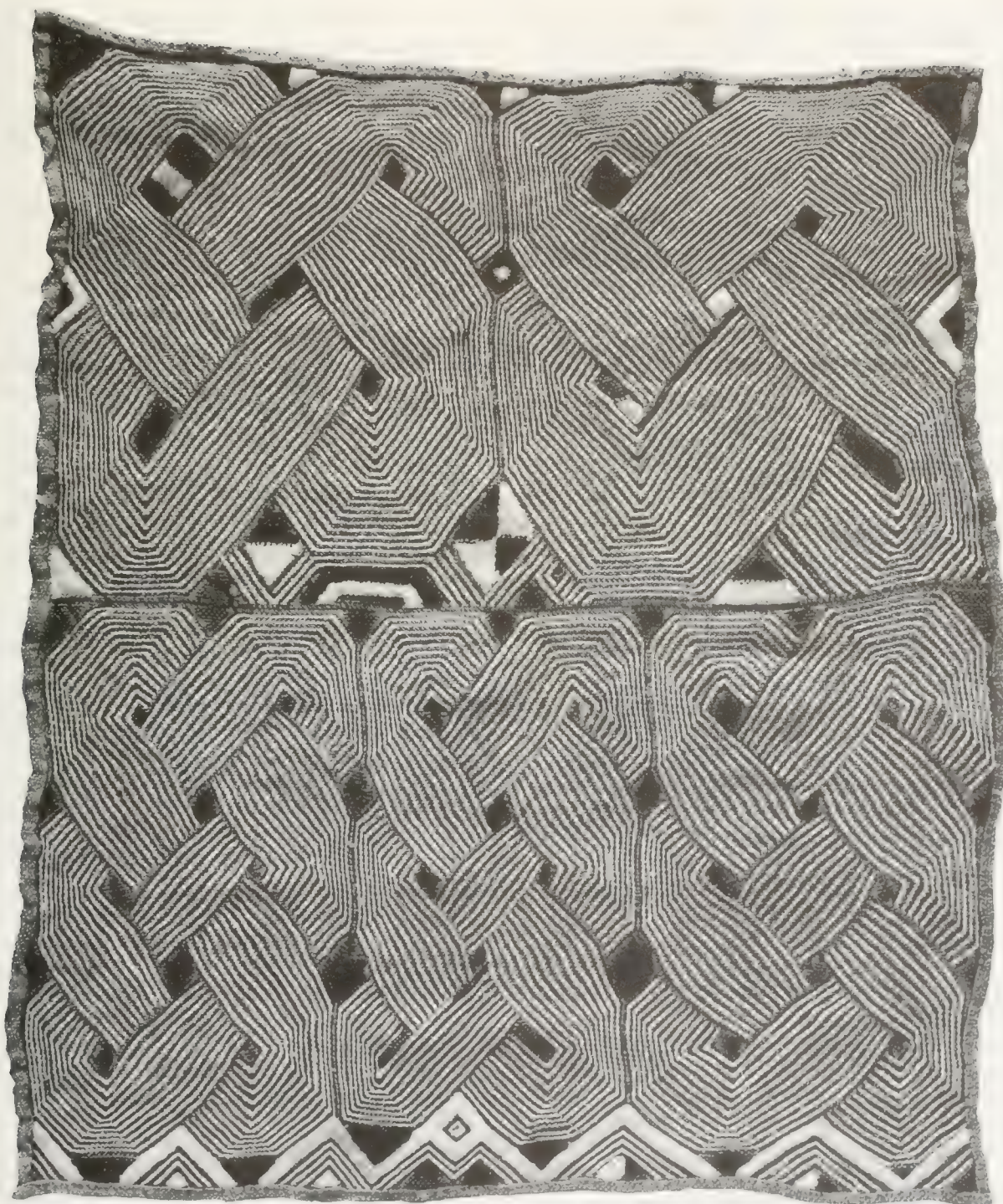
The past year marked a milestone for the National Museum of African Art: its first year at its new location on the National Mall. Nineteen eighty-eight also saw the museum take great strides toward realizing director Sylvia Williams's vision of bringing to the public the finest, most classic examples of the art of Africa south of the Sahara. Exhibitions and activities during the year reinforced the museum's goal of guarding, cherishing, and sharing these works, which stand as a tribute to the creative skill and ingenuity of African artists and to their dynamic past.

A record number of visits—640,000 in all—were recorded by the National Museum of African Art, the only museum in the United States dedicated to the collection, exhibition, and study of the art of Africa south of the Sahara. Among the distinguished visitors were U.S. Supreme Court Justice Sandra Day O'Connor; Her Royal Highness, the Grand Duchess of Luxembourg; the ambassadors to the United States from Senegal, Nigeria, Italy, and Switzerland; the Obi of Onitsha, Igwe Ofala Okagbue III; and Princess Njoya of Bamum, Cameroon.

Exhibitions

Five inaugural exhibitions launched the museum's ambitious exhibition schedule for the year. Among the highlights was "The Permanent Collection of the National Museum of African Art," including sculpture, textiles, utilitarian objects, and decorative arts. "African Art in the Cycle of Life" featured eighty-eight works illustrating various stages of the life cycle, from birth and the coming of age to death, the afterlife, and ancestors. Three additional installations, focusing on African textiles ("Patterns of Life: West African Strip-Weaving Traditions"), utilitarian objects ("Objects of Use"), and Benin metal sculpture ("Royal Benin Art in the Collection of the National Museum of African Art"), completed the opening exhibition schedule.

Nine months after opening its doors, the museum presented two exhibitions, one focusing on historical photographs of a Cameroonian kingdom in the early 1900s and the other featuring textiles from Zaire. "Images from Bamum: German Colonial Photography at the Court of King Njoya, Cameroon, West Africa, 1902-1915," presented sixty compelling photographs taken by German colonials portraying the life at the court of King Njoya, ruler of the Bamum Kingdom in Cameroon at the turn of the century. The second exhibition, "Shoowa Design: Raffia Textiles from Zaire," featured more than 100 raf-



Woven raffia textile, Shoowa group, Kuba peoples, Zaire, from the National Museum of African Art's exhibition "Shoowa Design: Raffia Textiles from Zaire." (Photograph by Jeffrey Ploskonka)

fia textiles created by the Shoowa group of Zaire's Kuba peoples.

As the fiscal year came to a close, curatorial and other museum staff were putting the finishing touches on two major fall exhibitions celebrating Kalabari art and ritual. "Kalabari Ancestral Screens: Levels of Meaning," will explore the traditional function and use of the screens as well as their history and formal qualities. The museum's first exhibition of contemporary art since becoming part of the Smithsonian, "Echoes of the Kalabari: Sculpture by Sokari Douglas Camp," will feature life-size figurative sculpture in steel and other materials. Inspired by Kalabari performing and visual arts, Sokari Douglas Camp draws inspiration from Kalabari masquerades, funeral celebrations, and festivals.

Acquisitions

In the past year twenty-two works of art were added to the permanent collection, including five objects acquired through gift and thirteen acquired through purchase. In addition, a rare Yoruba staff was purchased with funds provided by the Smithsonian Institution Collections Acquisitions Program. A Kuba mat and a Mangbetu vessel were acquired through a combination of donated and federal funds. A grant from the James Smithson Society supplemented federal funds that enabled the museum to purchase a Hongwe reliquary guardian figure. Among the gifts to the museum were a Fulani textile given by the National Museum of Guinea-Bissau and a Kente cloth donated in honor of Secretary Emeritus S. Dillon Ripley and Mary Ripley.

Education and Research

A rich program of lectures, teacher workshops, seminars, performances, demonstrations, and films brought the museum's exhibitions and collections alive for audiences ranging from elementary-school children to senior citizens. Several projects—including workshops and a booklet of gallery activities for both children and adults—were organized in conjunction with the "Shoowa Design" exhibition.

The museum launched its first film series—one for children and another showcasing films on the lives of African women—and began planning for a third series on the aesthetics of African cinema. Another educational project, funded by the Women's Committee of the Smithson-

ian Associates, invited students from Washington, D.C., high schools to participate in a ten-week in-depth study of the museum profession and African art.

Additional events included a two-day symposium held at the museum on "History, Design, and Craft in West African Strip-Woven Cloth" and a reception to celebrate the dedication of the museum's Smithsonian branch library, which is named for museum founder Warren M. Robbins. Curators, scholars, and the museum's designer and conservator participated in a week-long seminar, "African Art at the Smithsonian," held in conjunction with the Smithsonian National Associate Program.

Throughout the year, the museum's curatorial staff and guest curators published exhibition catalogues and additional informational materials to accompany the exhibitions. A brochure on the permanent collection was published to complement the didactic material in "The Permanent Collection of the National Museum of African Art." The full-color brochure focuses on masks and mask performances, rites of passage, regalia and personal adornment, and artists and clients.

Dr. Herbert M. Cole, the recipient of a Rockefeller Residency Fellowship in the Humanities, studied "Archetypes: Five Themes in the Visual Arts of Africa," which is scheduled to open as an exhibition in the fall of 1989. Funded by a grant from the Smithsonian Institution Special Exhibition Fund along with federal funding, the exhibition will be accompanied by a scholarly publication that will illustrate all the exhibited works of art and explore the related imagery and ideas in depth.

Research and planning continue for a future major exhibition on the art and architecture of African nomads. A grant from the Rockefeller Foundation for a working conference set the parameters for this exhibition.

The museum's full-time paid staff grew to nearly sixty, double the number of people who worked at the museum when it became part of the Smithsonian Institution in 1979. In addition, dozens of docents and information desk volunteers helped to fulfill the museum's mandate of educating the public about African art.

National Museum of American Art

The National Museum of American Art (NMAA) is dedicated to the acquisition, preservation, study, and exhibition of American painting, sculpture, graphic arts, photography, and folk art. The Renwick Gallery, a curatorial department of the NMAA, collects and exhibits American crafts, decorative arts, and design objects. The Barney Studio House is also maintained by the museum as a period home open for tours and special interpretive programs.

The museum houses the largest collection of American art in the world, now comprising almost 34,000 objects. In addition, the NMAA maintains seven research data bases, which include over 500,000 object listings of American art, for the benefit of investigators both at the Smithsonian and throughout the country. Complementing the research opportunities at the museum and within the Institution are active programs for fellows and interns, which serve some forty-five scholars and students each year.

After six years of leadership as director of the museum, Dr. Charles C. Eldredge announced his resignation effective August 22, 1988. Until a search committee chooses a successor, assistant director and chief curator Dr. Elizabeth Broun will serve as acting director. Among his accomplishments during his tenure, Dr. Eldredge reorganized the museum's administrative structure and budgetary practices; established the American Art Forum as an important support group for the Smithsonian collections of American art; founded the nationally respected *Smithsonian Studies in American Art*; reinstalled the museum's galleries with fresh coherence and beauty; and profoundly enhanced the museum's collection both in scope and substance.

Renwick Gallery

This year the Renwick Gallery presented a series of successful exhibitions on diverse themes in American crafts and decorative arts. Its major effort culminated in the presentation of "Lost and Found Traditions: Native American Art 1965-1985," organized by the American Federation of Arts and curated by former NMAA senior fellow Ralph T. Coe. Tracing the threads of continuity between artistic traditions rooted in the past and their current manifestations, the 380 Native American works in the exhibition demonstrated a will for cultural survival. Many people had believed that such objects were no longer being made, but far less has been lost than had been assumed, and traditions thought to have been aban-



Dr. Charles C. Eldredge—director of the National Museum of American Art for six years until his resignation in August 1988 to accept the position of Hall Distinguished Professor of American Art History at the University of Kansas—with Vigdis Finnbogadóttir, president of Iceland, viewing a selection from the museum's Herbert Waide Hemphill, Jr., Collection of American Folk Art.

doned have survived and evolved. Among the objects in the exhibition were canoes, drums, a full-size tepee, masks, a cradle, feather war bonnets, kachinas, and various textiles.

An impressive array of public programs and events enhanced "Lost and Found Traditions." A colorful and dramatic ceremonial dedication, featuring singing and dancing in tribal dress, took place in Lafayette Park across from the White House. In addition, craft demonstrations were held throughout the duration of the exhibition on such topics as pottery decoration, beading applications, mask making, rug and basket weaving, and flute making.

Another series of public programs at the Renwick during Black History Month considered the historical and contemporary contributions of Afro-Americans in aesthetic and functional crafts. A panel discussion, an illustrated lecture by a story quilter, and a presentation by a multimedia artist explored the historical background and African antecedents of cloth, clay, and wood crafts. Also discussed was the fine line between folk art, crafts, and memorabilia.

Other exhibitions at the Renwick in 1988 included "Cynthia Schira: New Work," which presented this artist's intricate abstract weavings created on a computerized loom; "American Art Pottery, 1880-1930, from the Cooper-Hewitt Museum," which featured seventy-five examples in the aesthetic and historical development of this movement; and "Clay Revisions: Plate, Cup, Vase," which examined three traditional ceramic forms as transformed into nonfunctional art objects by twenty-six nationally known contemporary American artists.

In an effort to foster scholarly activities at the Renwick, the James Renwick Fellowships in American Crafts were inaugurated in 1988. After a national competition based on the criteria of historical, aesthetic, and intellectual study and evaluation of the American studio craft movement, two recipients were appointed. These in-residence fellows conducted research on critical approaches to art in craft materials and on fiber art as a manifestation of the post-World War II crafts revival in America.

Two other events of 1988 will greatly strengthen the Renwick and its programs: the appointment by the NMAA Commission of an ad hoc advisory committee to encourage new initiatives, increase collecting and other opportunities, and extend the efforts of the professional staff; and the inclusion of the Renwick as a beneficiary of the Smithsonian's Collections Acquisitions Program. As a result of the latter, the gallery was able to acquire major works by such notable artists as William Hunt Diederich, Lenore Tawney, William Daley, and Frederick Miller. Significant gifts and purchases from other sources included important works by Otto Natzler, John McQueen, Tom Patti, Paul Bogatay, Tage Frid, and Frances and Michael Higgins.

Research Resources and Activities

In the spring of 1988, with the support of the Henry Luce Foundation, the museum began a nationwide solicitation of information for its newest research data base, the Inventory of American Sculpture. Questionnaires were mailed to more than 14,000 museums, historical societies, and cultural institutions around the country; responses have been received at a steady rate. The Inventory, which began with a core of 24,000 records developed through a pilot project in fiscal year 1987, will continue with a national survey and conservation assessment of outdoor sculpture, to be cosponsored by the NMAA and the National Institute for the Conservation of Cultural Property, in cooperation with the American Association

for State and Local History, the National Conference of State Historic Preservation Officers, the National Park Service, and the Smithsonian Conservation Analytical Laboratory.

The NMAA's widely acclaimed scholarly journal, *Smithsonian Studies in American Art*, this year increased the number of annual issues from two to three; articles have been secured to put the journal on a quarterly publication schedule beginning in 1989. Articles ranged over a wide spectrum of subjects and approaches, from an insightful interview with contemporary artist Wayne Thiebaud to a new investigation of the scenic artistry in the classic film *Casablanca*.

During the year, the museum welcomed its second consecutive Smithsonian Regents Fellow. Dr. Albert Boime, professor of art history at the University of California, Los Angeles, pursued research on the social history of modern art and on American art at the 1899 Paris Exposition. Other fellows and visiting scholars in residence during the year came from such universities as Cornell, Minnesota, Arizona, Syracuse, Tennessee, and Connecticut College.

Exhibitions

The museum presented exhibitions of works by specific artists and exhibitions drawn from thematic topics pertaining to the history of American art. The source for "Special Delivery: Murals for the New Deal Era" was the museum's collection of mural studies submitted in national competitions held between 1934 and 1943 for commissions to decorate post offices and other federal buildings. In addition to studies on paper and sections of actual murals, the exhibition included sculpture that was executed for specific federal projects. In conjunction with the exhibition, author Studs Terkel moderated a panel discussion on related federal arts activities during the 1930s and 1940s, featuring artists who had worked under New Deal programs. After closing in September 1988, "Special Delivery" began a five-city tour.

Three exhibitions continued the museum's new direction of exploring contemporary photography as artistic expression. "City Life: Photographs by Bruce Davidson" consisted of 168 works selected by the museum from three of Davidson's series, which illustrate the often moving and sometimes brutal life of New York City in streets, subways, and a cafeteria. Organized by the Center for Creative Photography, "Supreme Instants: The Photography of Edward Weston" surveyed this pioneering artist's entire oeuvre from 1904 until 1947, when he

was stricken by Parkinson's disease; the exhibition included many images that have long been classics in the field of photography. "Wanderlust," from the Hallmark Collection, provided a taste of the exotic with works by eight contemporary photographers who recorded scenes of such diverse locales as Spitzbergen and Calcutta, Cairo and Beijing, Kyoto and Afghanistan.

For the avant-garde, "Lucas Samaras: Objects and Subjects, 1969–1986," organized by the Denver Art Museum, presented an overview of this artist's remarkable versatility and intellectual challenge in a host of expressive media. Assemblages of distorted and transformed objects (including jeweled, reliquary-like boxes filled with bizarre materials), "unsittable" and encrusted chairs, and a 50-foot-long mirrored corridor were shown with paintings, sculpture, photographs, collages, and cloth hangings. The artist assisted with the design of the installation and was present at the opening.

More traditional images from the museum's collections provided the basis for special thematic installations in the galleries, such as "Images of Innocence: The Child in American Art," drawn from paintings and sculpture of the mid-nineteenth to early-twentieth century, when children were often idealized as examples of purity. "Close Focus: Prints, Drawings, and Photographs" examined ways in which contemporary realists crop and press their images so near the frontal plane of the picture that lines, forms, and color fields work as abstractions. "Drawings from the Collection" and "Olympian Trials" (a selection of photographs from Walter Iooss, Jr.'s portfolio of athletic events) presented other works that had not been previously shown at the museum.

The return of "Treasures from the National Museum of American Art," which had been on tour since February 1986, required an extensive rehang of the permanent collection galleries. Two other large-scale exhibitions organized by the museum completed their national tours: "John La Farge" (which opened at the NMAA and traveled to two other locations) and "American Art Deco" (which opened at the Renwick and traveled to five other venues).

Acquisitions

A number of major gifts and purchases enriched the NMAA's permanent collection this year. The museum's extensive holdings in American landscape painting were further strengthened by gifts of Thomas Moran's *Rainbow over the Grand Canyon*, 1900 (bequest of Marion H. Conley); *Looking Out of Battle Harbor*, 1877, by Wil-



Mike Wilkins' *Preamble*—a gift to the National Museum of American Art from Nissan Motor Corporation in the United States—is a collection of personalized license plates from fifty states and the District of Columbia that phonetically spell out the preamble to the U.S. Constitution.

liam Bradford (gift of David S. Purvis); and Sanford Gifford's *From the Shawangunk Mountains* (gift of the Estate of Charles H. Ettl). The twentieth-century collections were enhanced by the addition of Leon Kroll's *Summer, New York*, 1931 (bequest of Mrs. Leon Kroll). *Preamble*, 1987, Mike Wilkins's assemblage of "vanity" license plates from fifty-one states spelling out the preamble to the U.S. Constitution, a project conceived to commemorate that document's bicentennial, received substantial public and media interest; it came as a gift to the museum from Nissan Motor Corporation in U.S.A.

A series of twenty-five photogravures of Indian life (c. 1903–27) by Edward Curtis was added to the photography collection as a transfer by the U.S. Department of Justice from art confiscated under its drug enforcement program. The National Endowment for the Arts made a significant transfer of sixty-four prints created under its

National Museum of American History

grant programs by such artists as Robert Rauschenberg, Jasper Johns, Josef Albers, Ernest Trova, William T. Wiley, and Jacob Lawrence.

The museum was able to make significant purchases through a combination of federal and trust funds. These included Marsden Hartley's *Yliaster (Paracelsus)*, a 1932 oil reflecting the artist's conjunction of landscape and spiritual themes; Raymond Jonson's *Composition Four—Melancholia (Space Moods)*, 1925, an oil on canvas; and John Trumbull's *The Misses Mary and Hannah Murray*, 1806, a rare double portrait from the early Federalist period. *The Pilgrim of the World at the End of His Journey*, 1846–48, by Thomas Cole, a study for the artist's ultimate but unrealized allegorical cycle, joined another work from this series already in the museum's collection.

Collections Management

Computer-assisted object tracking has greatly enhanced collections management in all areas during the past three years. The system was developed in cooperation with the Smithsonian Office of Information Resource Management and is in use at four locations within the museum. Efforts have begun to expand its use to include inventory functions.

In 1988 the NMAA launched its Artist Authority Project to establish a data base that will link listings in the museum's permanent collection and those in its seven research data bases. More than 2,500 artists' names have now been researched. In a related effort, the NMAA has joined other Smithsonian bureaus in a continuing analysis of collection information, research, and collection management needs and the data structures that will support access to collection information at the Smithsonian. A working information model has been produced, and the feasibility of providing simultaneous electronic access to images and data for research use of the museum's permanent collection has been successfully demonstrated using CD-ROM, which incorporates text and images on a laser disc.

Continuing its policy of supporting important exhibitions at other museums and institutions in the United States and abroad, the museum this year lent a total of 187 artworks from its collection. Not only was art added to the NMAA's collection, but a total of 301 deaccessioned works from the collection were sold at public auction. Proceeds from the sales will be used solely for acquisitions for the collection, with donors' names appropriately credited for the newly acquired works.

The National Museum of American History (NMAH) investigates, interprets, collects, preserves, exhibits, and honors the heritage of the American people. The museum's first responsibility is to protect and present tangible pieces of history—tools, machines, gowns, ceramics, photographs, and countless other survivors of the past. But it also seeks to reconstruct more elusive pieces of the past through music, drama, and the oral heritage of Americans. Drawing on original research, the museum's exhibitions, publications, and public programs contribute to both the scholarly understanding of American history and the broad dissemination of knowledge.

The life of the museum this year was full and varied. The year began with the opening of a controversial exhibition on the constitutional issues raised by the internment of Japanese Americans during World War II; included the acquisition of the magnificent Duke Ellington Collection of the composer's manuscripts, photographs, papers, and many other objects; and ended with the completion of the Smithsonian Institution's first child care center.

Exhibitions

The museum presented more than two dozen exhibitions, large and small, in the last year. The first was among the most dramatic. "A More Perfect Union: Japanese Americans and the United States Constitution," which opened in October 1987, focuses attention on the bicentennial of the U.S. Constitution. Funded through a special congressional appropriation, the exhibition explores a period when fear and racial prejudice upset the balance between the rights of the citizen and the power of the state and led to the internment of some 120,000 Japanese Americans during World War II. The exhibition features scores of everyday objects and works of art made by Japanese Americans in internment camps during the war and compelling video interviews with men and women who spent months, even years, in the camps. A section also describes the valor of the men of the 100th Battalion/442nd Regimental Combat Team, an all-Japanese American unit of the U.S. Army.

Events of the late summer confirmed that the influence of this period continues to ripple through American history. On August 4, 1988, the U.S. House of Representatives voted the nation's apologies to Japanese Americans interned during the war and granted cash reparations of \$20,000 to each of about 60,000 surviving internees.

The next large exhibition demonstrated the museum's

willingness to tackle even the most complicated and contemporary of subjects. "The Search for Life: Genetic Technology in the Twentieth Century," which opened in November 1987, chronicled the rise of molecular biology and genetic engineering. Funded by a grant from the W. K. Kellogg Foundation, the exhibition explored how the knowledge gained in these fields brings with it a new responsibility. It pointed to technologies with which people can alter their environment, create man-made plants and animals, and, perhaps, even manipulate their own heredity.

"A Material World" opened in April and serves as a general introduction to the artifacts of the museum as a whole. Most exhibitions ask questions like "Who made these objects, how, and what were they used for?" This exhibition poses other, seldom-asked questions: "What is this object made of, why, and why does it matter?" Using hundreds of objects, from a spinning wheel to a dragster, the exhibition traces changes in the composition of artifacts over the past 250 years and explores how our choices of materials affect the makeup and "feel" of our artificial environment. A softcover exhibition booklet by historian of science Robert Friedel accompanies the exhibition, which was funded by E. I. du Pont de Nemours and Company.

For the last large exhibition of the year, the museum literally raised the roof. From July 1 on, visitors at the museum's Constitution Avenue entrance encountered a Usonian Automatic House, designed by Frank Lloyd Wright in 1955 and erected for "Frank Lloyd Wright: In the Realm of Ideas." Organized by the Scottsdale Arts Center Association and the Frank Lloyd Wright Foundation, this traveling exhibition explores the ideas and achievements of Frank Lloyd Wright through the Usonian house and through a gallery that shows images of his designs and completed buildings and presents excerpts from his writings.

The museum's other exhibitions addressed subjects as diverse as international art medals; changing visual images of work and workers in America; and the development of the collotype process, one of the first successful methods of printing photographs in permanent ink. One exhibition highlighted the national efforts to preserve and restore migratory waterfowl populations and the wetlands they inhabit, efforts made possible in part through the sale of Migratory Bird Hunting and Conservation stamps, more commonly known as Duck Stamps. The museum's National Philatelic Collection has been the repository for the nation's Duck Stamp collection since 1955.



As quartet-in-residence at the National Museum of American History, the Smithsonian String Quartet holds a preeminent position as one of the few quartets to perform the great classical and early romantic repertoire on original instruments. The members of the quartet are (from left to right) Marilyn McDonald, Jaap Schroeder, Judson Griffin, and Kenneth Slowik. (Photograph by Diane Penland)

Research, Scholarship, and Collections

The research and collecting activities of curators and other staff members lay the groundwork for the museum's exhibitions and publications. Some of the year's notable developments for each of the museum's major units, and for several other smaller scholarly enterprises, are described here.

In addition to opening "A Material World," the Department of the History of Science and Technology continued its work toward the reinstallation of other halls of science and technology. The two largest projects under way are a permanent exhibition on information technology and its effects on society, scheduled to open in March 1990, and a new hall of American science, emphasizing the history of the physical sciences, especially chemistry, during the last century.

During the past year, the department established important new contacts with scholars abroad, especially in Asia. Ramunas Kondratas and Michael Harris of the Division of Medical Sciences visited the People's Republic of China to promote communication between Chinese and American medical historians and to study how traditional Chinese methods are being practiced in conjunction with Western medicine. Historians Marie Mattson, David Allison, and Arthur Molella accompanied Secretary Adams to Japan to begin a dialogue with museum officials, scholars, and industrial leaders there on issues of technological history. Dr. Bernard Finn, curator in the Division of Electricity and Modern Physics, traveled to India as a consultant for an exhibition on the information age, and a group from India visited the Smithsonian in September.

A brief list must represent the many other projects undertaken by members of the department. As part of the celebration of the centennial of the National Institutes of Health (NIH), staff of the Division of Medical Sciences used objects from the collections to re-create a part of the original U.S. Hygienic Laboratory, which evolved into the NIH. Lu Ann Jones, a historian working for the Division of Agriculture and Natural Resources, completed interviews of 175 farm men and women for the Oral History of Southern Agriculture project. Smithsonian photographers also took thousands of photographs of the subjects. Donald Kloster, curator in the Division of Armed Forces History, served as a member of a joint U.S.-Canadian team that identified artifacts from the War of 1812 at Fort Erie, Canada. The investigation determined that remains found at the site were those of a member of the U.S. Army; they were brought to the United States and reinterred in a veterans' cemetery at Bath, New York.

Among the department's important accessions were SCAMP, the first personal computer made by IBM; a Rumely Oil Pull 20-40 tractor; the laboratory instruments and notes of Stanley Cohen of Stanford University, who with Herbert Boyer invented and patented the technique for producing recombinant DNA; a complete uniform of Helen Ostheimer, World War I U.S. Marine, 1918-19; and an eighteen-inch Hadley quadrant, which became the standard instrument for determining latitude at sea in the late eighteenth century.

The work of the Department of Social and Cultural History revealed an ongoing concern for the study of the diverse traditions present in America and an increased emphasis on twentieth-century material culture. This year the Afro-American Index Project, directed by Theresa Singleton, neared the end of its task of collecting informa-

tion about Afro-American artifacts housed in five Smithsonian bureaus. The information will be published in a collections guide that will include essays on Afro-American material culture. New curators Charles McGovern and Bernice Reagon bring to the Division of Community Life expertise in the history of consumerism and in Afro-American culture, respectively, to reinforce the museum's commitments in these areas.

The Division of Musical Instruments and staff from the Department of Public Programs' performance section merged to create the Division of Musical History; its research, acquisition, exhibition, and performance objectives emphasize music in America. The division organized several critically acclaimed performances featuring the Smithsonian Quartet and the Smithsonian Chamber Orchestra, culminating in the first U.S. performance of Beethoven symphonies using period instruments.

Dramatic progress was made during the year on the planned long-term interpretive exhibition on nineteenth-century America, and work proceeded for its counterpart on the twentieth century. Barbara Smith and Claudia Kidwell, with the staff of the Division of Costume, continue to combine social history with costume history in an exploration of attitudes toward gender; the product of their work will be a book and an exhibition scheduled for 1989. Department staff also organized several conferences last year in cooperation with other institutions and NMAH offices. The subjects of these conferences ranged from "Women in the Progressive Era" to "Black Migration and the American City: Forging the African American Urban Community."

The department's major acquisitions of the past year include a large, well-documented collection of textiles copyrighted between 1955 and 1977; a gift from Mr. and Mrs. C. Malcolm Watkins of 5,085 stereographs that record details of American technological and social history; and kitchen appliances dating from the 1930s to the 1960s that reflect changes in household technology and design.

As a living history project, the National Philatelic Collection dispatched a newly restored vehicle to retrace the nation's original Highway Post Office route from Harrisonburg, Virginia, to Washington, D.C. The bus was the same one used on that first route in 1941 when service was inaugurated; it completed the 146-mile journey on April 15.

The philatelic library expanded the computerization of its reference collection of books, monographs, serials, articles, and photographs using the Smithsonian Institution Bibliographic Information Service system for information and retrieval under the direction of librarian Nancy Pope.

fourteen new slide programs were added to the twenty-five already available free of charge to civic groups, postal unions, and philatelic organizations. Curator James Bruns and specialist Joseph Geraci gave a course in philatelic research in conjunction with the American Philatelic Society's summer seminar at the University of Pennsylvania. This year's accessions totaled 88,000 objects, among them 53 historic American postal marking devices.

Research by the staff of the National Numismatic Collection proceeded at its customarily ambitious pace. Curator Richard Doty continued his research at the museum and at the Matthew Boulton Archives in Birmingham, England, on the revolutionary coining process developed by Boulton and James Watt in the 1780s and 1790s and subsequently exported around the world. Executive director Elvira Clain-Stefanelli published an article on ancient Greek metrology in a leading Belgian numismatic review and was invited to testify at Senate hearings on a special bill introduced to change the design of our national coinage. In April, curator Cory Gilliland attended the International Delegates' meeting of the Federation of the Medal in Paris. Especially important this year was the design of an automated collections management system, which will aid both recordkeeping and research. Accessions numbered more than 600 items, among them a unique copper pattern of an 1894 dollar, the first dollar issued by the U.S. Mint.

While archivist John Fleckner has been serving as acting director of the Archives of American Art, the Archives Center has continued its growth under acting administrator Robert Harding. This year's most significant activity was the inauguration of the Duke Ellington project—the processing, rehousing, and cataloguing of the musician's massive archives, including manuscripts, scrapbooks, photographs, correspondence, memorabilia, tape recordings, and other valuable artifacts related to Ellington's life and work. With funds provided through a special congressional grant, the museum acquired the collection this year through the joint efforts of the Archives Center and the Division of Musical History. Other new collections acquired during the year include the Sam deVincent Collection of Illustrated American Sheet Music, estimated at 150,000 items; the records of the Society for the History of Technology; the United Shoe Machinery Company archives; and more than 300 photographs relating to the life and work of Thomas A. Edison.

The Office of Academic Programs, established in 1987, is responsible for developing and coordinating the museum's relationships with colleges and universities. This

year the office brought the journal of the American Studies Association, *American Quarterly*, from Philadelphia to Washington, established a board of managing editors composed of scholars from nearby universities, and opened new editorial offices here. The office also began the first year of a joint NMAH–American University program. Gary Kulik, assistant director for academic programs, completed two forthcoming manuscripts, “Designing the Past: A History of History Exhibits” and “The Transfigured Past: Memory and Forgetting in the Industrial Landscape of New England.”

In addition to its major offices and curatorial units, the museum is home to several smaller projects, the work of individual scholars or small staffs investigating specific periods or historical figures. The Afro-American Communities Project indexes and analyzes information from social, economic, and personal documents to help scholars assess historical assumptions about the nature and role of black community life in the nineteenth century. This year the project acquired death records for the city of Boston for 1801–60; Boston marriage records for 1849–60; and the 1855 Buffalo census, which has been coded and entered into a data base providing statistical analysis of family structure, income, occupation, and residency of the free black community of Erie County, New York. The Robert Mills Papers project has collected copies of 3,500 documents related to the career of the architect of the Washington Monument. Publication in 1989 of a microfilm edition, index, and guide to the materials will facilitate research on Mills and early nineteenth-century American architecture, including several buildings now operated by the Smithsonian.

As a service to the history museum field, the museum is providing space for the Common Agenda project of the American Association for State and Local History. Funded by the National Endowment for the Humanities, the project promotes collaboration among museums and related organizations in solving common problems involving collections and interpretation. Initial activities aim at strengthening ties between academic historians and history museums and creating shared data bases of history museum collections.

Public Programs

Our national experience and cultural traditions are brought to the public both through exhibitions and through the activities sponsored by the Department of Public Programs. The department's offerings increase the



The Usonian Automatic House, designed in 1955 by Frank Lloyd Wright but never before constructed, was open to visitors at the National Museum of American History in the summer of 1988 as part of the exhibition "Frank Lloyd Wright: In the Realm of Ideas." (Photograph by Barth Tillotson, Greg Booth & Associates)

educational value of exhibitions, bring the museum's services to schools, and provide a live and artistic component to the study of history. In 1988 the department presented films, live performances, symposia, and other programs on a broad variety of subjects, such as the music and life of Irving Berlin; musical traditions of black, white, and American Indian communities; black women composers; and the role of heroes in American life.

Building on the department's efforts to attract a broader constituency for the museum, the Program in Black American Culture and the Smithsonian's Committee for a Wider Audience presented a conference at which twenty-one scholars and museum practitioners explored ways to draw a larger and more diverse audience to museums. The Program in Hispanic American History organized "The Other D.C./El Otro D.C.," a series of

performances and forums focusing on the role of Hispanic culture in shaping American history.

In the Division of Education, the audience research program continued to study the reaction of museum visitors to exhibitions and public programs. In 1988 the program gathered and analyzed visitor responses to the experimental "Science, Power, and Conflict" exhibition to aid in the development of science programming and exhibitions planned in the next five years.

The Columbus Quincentenary Program planning group, headed by Lonn Taylor, assistant director for public programs, continued its work toward a permanent exhibition, "American Encounters," to open in 1992. A temporary exhibition, "Commerce and Conflict: The English in Virginia, 1625," opened this year in conjunction with a forum at which scholars of ethnohistory, anthropology, and folklore discussed American Indian perceptions of European colonization in North America.

Completing the department's activities in 1988 were such popular and well-established programs as Jazz in the Palm Court, Music in the Bandstand, America on Film, and Saturday After Noon. In addition, the department coordinated the efforts of nearly 200 undergraduate and graduate interns and approximately 200 docents.

The 1988 Frank Nelson Doubleday Lecture and Performance, coordinated by the Office of Special Events, featured black American gospel music. Conceived by Dr. Bernice Johnson Reagon, the program included performances by Robert Anderson of Chicago, the Sterling Jubilees of Bessemer, Alabama, and the Richard Smallwood Singers of Washington, D.C. A special dress rehearsal was open to the public. Although Smithsonian production staff and research have undergirded all of the programs in the Doubleday Lecture Series over the past decade, this year's marked the first occasion on which Smithsonian research actually took the stage.

Behind the Scenes

A great deal of invaluable work goes on at the museum simply to keep the building and the collections it houses in shape and make possible the exhibitions and programs that millions of visitors come to see. This year, the museum began to implement the first of four phases of its master space plan. The plan calls for new heating, ventilating, and air-conditioning systems, fire prevention systems, a new public address system, new communication lines, a new roofing system, and the removal of asbestos. The Office of the Building Manager is primarily responsible

for overseeing the plan, but during the five or more years it will take to complete, the master plan will have an impact on virtually every office and division and will necessitate the relocation of millions of objects as different sections of the building are renovated in turn.

After more than a decade of effort by Smithsonian employees, the Institution's first child care center opened on the second floor of the museum's west wing in early October. This 2,300-square-foot facility will accommodate forty children aged two through five and consists of three learning centers, an activities area, a kitchen, utility and storage rooms, a director's office, and bathrooms.

In the Office of the Registrar, important work continued in the collections management program during 1988, especially in the automation of collections information and in improvements in physical care. More than 100,000 objects were accessioned into the permanent collection and almost 3,000 were lent or borrowed for exhibitions. Important loans from the collections included the early ENIAC computer, lent to Osaka, Japan, and the exhibition "Isaac Newton and the Principia: Three Hundred Years," lent to the IBM Gallery of Science and Art in New York City.

Newly designed automated recordkeeping systems became available for the National Numismatic and National Philatelic collections, as well as a general collections program for new acquisitions, loans, and object tracking. Office staff also participated in the design of the Institution's central Collections Information System. As a result of the numerous collections relocations and in answer to the increasing lack of storage, the museum took possession of 24,000 square feet of rental warehouse space at Fullerton Industrial Park in Springfield, Virginia.

Staff of the Computer Services Center coordinated an expansion in the central minicomputer system and the network of microcomputers and workstations, accompanied by an extensive training program. The center's biggest projects dealt with collections, including the development of a local system to support collections that meets the requirements of the curatorial and registrarial staffs and a project that is analyzing the functions of collections management, public programs, and research. The results of this analysis, which involves approximately 100 staff members from all parts of the museum, will lay the foundation for the development of a far-reaching system containing information about collections at the museum on the Institution-wide Collections Information System.

During the year the Division of Conservation rehoused or gave basic stabilization treatment to more than 30,000 objects. A major new project was also begun, the work

National Museum of Natural History/National Museum of Man

of microfilming, audiotape copying, and paper conservation for the newly acquired Duke Ellington Collection. A costume conservator and technician were hired to begin treatment of the First Ladies' gowns. Documentation, cleaning, preparation of new mannequins, and the design of safe storage and exhibit cases are just a few of the elements in the complex process of stabilizing the collection and preparing selected gowns for a new exhibition. The division's conservators and curatorial collections managers also began planning for the construction of a specialized laboratory devoted to the museum's holdings of more than 40,000 costumes, uniforms, flags, and other textiles and fragile organic objects. Pendragon Press published *The Metallurgy of 17th- and 18th-Century Musical Instrument Wire*, by head conservator J. Scott Odell and coauthor Martha Goodway.

The National Museum of Natural History/National Museum of Man, the nation's largest research museum, houses the largest and most valuable natural history and anthropological collections in the world—more than 118 million specimens of plants, animals, fossils, rocks, minerals, and human cultural artifacts. These vast, extensively documented holdings support research by the 120 doctoral-level scientists on the museum staff, by visiting scholars and students from all over the world, and by eighty resident scientists from affiliated federal agencies with natural history functions (the U.S. Department of Agriculture, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, and the National Institutes of Health).

The museum shares its work with the scholarly community through publications, symposia, and scholarly exchanges and with the public through exhibitions, popular publications, public forums, and educational programs. Testimony to the success of the public programs are the more than seven million visits recorded to the museum in 1988, making NMNH by far the most heavily visited natural history museum in the world.

Dr. Frank H. Talbot was appointed director of the museum in June 1988; he assumed his new position in January 1989. The former executive director of the California Academy of Sciences, he is an expert on fish ecology and coral reefs and a well-known innovator in natural history exhibitions and education. Before his tenure at the California Academy, Dr. Talbot held the founding chair of environmental studies at Macquarie University in Sydney, Australia (1975–82); served as director of the Australian Museum in Sydney (1964–75); and worked as a marine biologist and assistant director at the South African Museum, Cape Town (1958–64). During the year Dr. James C. Tyler served as acting director.

Highlights of the museum's 1988 research, management, exhibition, and educational activities follow.

Biodiversity Research

The major center of biological diversity on Earth is Amazonia. With this region's rich habitats imperiled by deforestation, the museum is moving as rapidly as possible to document and study plant and animal species there. For the second consecutive year, Dr. Terry Erwin led teams of scientists to Beni Biosphere Reserve, Bolivia, and Manu Reserved Zone, Peru, where long-term, in-depth biodiversity inventories are under way in collaboration with the Bolivian and Peruvian governments, host coun-

try scientists and students, and international conservation organizations. The studies are expected to help protect many of the rare and endangered species of the neotropics, some of which may yield new sources of food, medicine, biological controls, and important germ plasm for agricultural use.

Training workshops for fifty Bolivian and Peruvian biologists and seventeen Puerto Rican biologists participating in biodiversity inventories were held at Beni Biosphere Reserve, Manu Reserved Zone, and Luquillo National Forest, Puerto Rico. As the biodiversity program expands, the museum will train hundreds of host-country biologists and conservationists to develop inventories of species in these tropical ecosystems.

Museum botanists Dr. Lawrence Skog and Dr. Dieter Wasshausen and colleagues from the United States, France, Germany, the Netherlands, and the Guianas explored Montagne de Tortue, a remote and botanically unknown mountain range in French Guiana, bringing back an abundance of new, poorly known, or seldom-collected species. The expedition was part of a long-term

multinational effort to analyze the little-known vegetation of the Guianas. One goal is to determine what areas in the Guianas merit special protection on the basis of biotic diversity.

Museum zoologist Dr. Ronald Heyer investigated the remnants of a vast coastal forest that was once continuous along the northern Atlantic coast of Brazil. Most of the forest has been logged and replaced by sugar and cocoa plantations, but patches of forest survive. Studies of these scattered fragments are planned as part of the ongoing investigations of the composition, distribution, and evolution of the plants and animals in Amazonia and the Atlantic forests.

Investigation of Dolphin Deaths

When dead and dying bottlenose dolphins began stranding on Atlantic coastal beaches in unheard-of numbers in July 1987, members of the museum's Marine Mammal Program team—Dr. James Mead, William McClellan, and Charles Potter—were the first to recognize that something unusual was happening and alerted the scientific community. The program began in 1972 to recover data and specimens of marine mammals on the U.S. Atlantic coast, an area that Smithsonian marine mammalogists have had a keen interest in since the nineteenth century. The program has vastly increased scientific knowledge of the biology, migratory patterns, size, and distribution of dolphin populations. To study the mysterious epidemic, the museum, the Marine Mammal Commission, and the National Marine Fishery Service assembled an international Dolphin Resource Team. Throughout 1988 the museum made regular aerial surveys of Atlantic coastal beaches, sighting many stranded dolphins that otherwise might never have been recovered and examined. The cause of the deaths has not been determined, but researchers believe that a disease agent is responsible, possibly a virus that spread through the dolphin population, weakening the animals' immune systems.

Museum Scientist Identifies Gigantic "Toothed" Seabird

The discovery and identification of the largest flying seabird ever to soar above the oceans of the world, an extinct creature thought to be related to pelicans, cormorants, and their allies, was announced in Novem-



Conservators at the National Museum of Natural History/National Museum of Man working on Siberian and Alaskan clothing for the major exhibition "Crossroads of Continents."
(Photograph by Diane Nordeck)

ber 1987 by the museum's Dr. Storrs Olson and colleagues at the Charleston Museum in Charleston, South Carolina. The bird, a member of an extinct family called "the bony-toothed birds," or pseudodontorns (so named because of the unusual long "bony teeth" protruding from the upper and lower jaws), had a wingspan of more than 18 feet and may have weighed close to 90 pounds. It lived thirty million years ago. All previous pseudodontorn species were known only from isolated bones or from two-dimensional impressions in rock. The new species is remarkable because it is much larger than any previous known pseudodontorn and because most of the skeleton is preserved.

Global Fieldwork

Dr. Robert Fudali was a member of a U.S. scientific team that collected more than 700 meteorites and meteorite fragments on the Antarctica South Polar plateau. Dr. Hernani Menez, director of the museum's Oceanographic Sorting Center, led a marine biological expedition to the relatively isolated and unexplored Tawi-Tawi Islands of the Sulu Archipelago in the southern Philippines. Dr. Charles Handley headed a field party that explored the unique fauna of the Bocas del Toro Archipelago, a maze of hundreds of biologically unknown islands, reefs, and mangrove swamps off the northeastern coast of Panama. Dr. James C. Tyler, using an underwater video system, conducted studies with a colleague on sailfin blenny fish behavior on the reef at Carrie Bow Cay, Belize. In China, Malaysia, and Singapore, Dr. Robert Higgins made collections of kinorhyncha and other tiny invertebrate animals that live between grains of sand on the ocean floor.

Folsom Hunting Campsite Excavated

Among the earliest human inhabitants of the Americas were the Folsom people, who hunted bison and other game animals in the western portion of the Great Plains and Rocky Mountain regions between 10,900 and 10,400 years ago. In 1988, archaeologist Dr. Dennis Stanford, director of the museum's PaleoIndian Program, and research archaeologist Pegi Jodry continued investigations of a Folsom site in the San Luis Valley, Colorado, uncovering new data on the activities of roving Folsom hunting bands. The scientists were assisted by a team of volunteers from the new Research Expeditions Program, sponsored by the Smithsonian National Associate Program.

Smithsonian Marine Station at Link Port

The Smithsonian Marine Station at Link Port in Fort Pierce, Florida, had more than 100 visits from Smithsonian scientists during 1988. Their diverse research activities—often undertaken in collaboration with colleagues from other institutions—ranged from systematics, ecology, and life histories of the marine flora and fauna to the spectral attenuation of underwater light and the density of submarine volcanic pumice. One new project, initiated by the museum's Dr. Ian Macintyre, Dr. Mark Littler, and Diane Littler, seeks to document the distribution of the calcareous green alga *Halimeda* in the Florida Keys in an effort to understand what environmental conditions over geological time gave rise to the alga's great sediment-producing ability.

Native American Tribal Catalogues

In an effort to make the museum's collections more accessible to Native American communities, the museum has begun to survey and describe its tribal holdings. The goal is a set of illustrated catalogues describing in detail the museum's collections of ethnographic objects, film, photographs, and archival materials. These catalogues should provide the tribes with vast amounts of information about their cultural past. The Kiowa, Zuni, and Crow catalogues are in preparation, and others are planned. The catalogues will be inexpensive and thus more available to tribal people, scholars, and the general public. Coordinated by Dr. JoAllyn Archambault, director of the museum's Native American Indian Program, the project is being carried out by interns from the tribes involved.

Symposia

"Americans before Columbus: Prehistoric South Americans," a public symposium honoring contemporary South American archaeologists who have received training and support from the National Museum of Natural History, featured six leading South American anthropologists who discussed new research findings bearing on the first people to inhabit the South American continent. The forum was organized by the museum's Dr. Betty Meggers, with the support of Dr. Herman Viola, director of the museum's Columbus Quincentenary programs.

Forty authorities from the Soviet Union, Japan, China,

Australia, and eight other nations gathered to reassess and clarify the systematic status and biological knowledge of squid, octopus, and cuttlefish families important in biomedical research and as fishery resources. Organized by the museum's Dr. Clyde Roper, this hands-on workshop allowed these scientists to conduct research on thousands of specimens brought together from around the world. Out of the workshop will come a publication that will contain natural history data invaluable to biologists, ecologists, and fishery resource managers.

"The Poetics and Politics of Representation," an international conference jointly sponsored by the Institution and the Rockefeller Foundation, brought together leading scholars from museums and universities throughout the world to discuss the portrayal of human cultures in museum exhibitions. It was organized by museum anthropologist Dr. Ivan Karp in collaboration with the California Institute of the Arts.

Distinguished Soviet and American scholars were participants in a symposium coinciding with the opening of the museum's major exhibition, "Crossroads of Continents: Cultures of Siberia and Alaska." Sponsored by the International Research and Exchanges Board, the American Council of Learned Societies, and the Institute of Ethnology, USSR Academy of Sciences, the symposium presented new perspectives on the relationships of the North Pacific cultures that have occupied the lands on both sides of the Bering Strait for at least the last 15,000 years.

More than 100 U.S. and Canadian scholars attended the Nineteenth Algonquian Conference at the museum. Papers were presented on Algonquian Indian culture, history, prehistory, folklore, and languages. The museum's Dr. Ives Goddard, an authority on Algonquian language, was the conference organizer.

New Technology

The museum purchased a new transmission electron microscope, ten times more powerful than the microscope the museum has relied on for the past fifteen years. The new instrument's resolution, speed, convenience of operation, and immense magnifying power—up to and above 500,000 \times —are opening new paths of research for museum scientists who are attempting to chart and understand the labyrinthine internal complexities of plant and animal anatomy. For example, the museum's Dr. W. Duane Hope is using the new transmission electron microscope in combination with a scanning electron micro-



The largest faceted gemstone in the world, a 22,892.5-carat golden yellow topaz, a gift to the National Museum of Natural History/Museum of Man of the six regional federations of mineralogical societies and Drs. Marie and Ed Borgatta. (Photograph by Vic Krantz)

scope to study details of marine nematodes, discovering new taxonomic characters that may change their systematic position in nematode classification.

Museum researcher Dr. Jeffrey Post is employing state-of-the-art analytical electron microscopy, powder x-ray diffraction data, and computer graphics to learn more about minerals. One ongoing study is shedding light on the structure and formation of economically important oceanic manganese oxides. These minerals, which occur on the ocean floor, often contain cobalt, nickel, copper, and other strategic metals. The United States has a limited supply of these minerals and may eventually decide to mine them.

Notable Publications

In an April 1988 article in *Science* magazine, museum senior oceanographer Dr. Daniel Stanley reported that the northeastern edge of the Nile Delta is rapidly subsiding, a situation aggravated by sea-level rise and by the blockage of normal sediment flow by the Aswan Dam on the Nile River. The subsidence could flood a large part of the northern delta plain by the year 2100, inundating agricultural lands where several million people now live. The findings were based on an ongoing multidisciplinary study in the delta directed by the museum in cooperation with the Egyptian government.

Exploring the West, by museum historian Dr. Herman Viola, was published by Smithsonian Books. Drawing on unpublished materials in the Smithsonian Archives, Viola provides the most detailed description ever written of the Smithsonian's role in aiding the U.S. government-sponsored expeditions that mapped and described the nearly unknown American West in the mid-nineteenth century.

Crossroads of Continents: Cultures of Alaska and Siberia was edited by museum anthropologists Dr. William F. Fitzhugh and Aron Crowell, with contributions from Soviet and American scholars. This 360-page book, with color plates, was published by the Smithsonian Press to accompany the "Crossroads of Continents" exhibition.

Collections Management

In 1988 approximately 428,000 specimens were added to the collections by expedition, gift, purchase, and deposit by affiliated federal agencies. Among the notable gifts were a collection of 9,000 display-quality seashells of rare form, pattern, and color; a 5.03-carat red diamond, one of only five documented red diamonds in the world; a 22,892.5-carat golden-yellow topaz, the world's largest faceted gemstone; and a complete skeleton of a 90-million-year-old shark, the finest of its kind ever discovered.

The museum is actively engaged in the care and conservation of the collections. A multiyear effort to convert the collections inventory data base to the Institution's on-line Collections Information System is under way, contributing to more effective scholarly use of the museum's vast collections and helping to maintain inventory control. Approximately one million records are now accessible through this system, developed in conjunction with the Institution's Office of Information Resource Management.

Museum Support Center Celebrates Fifth Anniversary

A month-long schedule of special tours and programs in May 1988 marked the fifth anniversary of the Museum Support Center (MSC) in Suitland, Maryland, a facility that provides modern storage and security for the national collections, as well as office and laboratory space. The lack of space in the Natural History Building makes the MSC vital to the continued growth of the museum and its collections, many of which are the largest and best of their kind. In 1988 the museum moved approximately 1.5 million collection items to the MSC, which now houses more than 4 million of the museum's anthropological artifacts and natural history collections.

Exhibitions

"Crossroads of Continents: Cultures of Siberia and Alaska," an exhibition developed jointly by the museum and the Soviet Academy of Sciences with the collaborative aid of the International Research and Exchanges Board, opened in September in the Thomas M. Evans Gallery. Ten years in the planning, the exhibition marks the first time many early and important archaeological and ethnographic collections from this remote but increasingly important geographic region have been brought together for presentation to the people of both continents. The artifacts had been held in museums in the Soviet Union, Canada, and the United States.

The exhibition presents a unified and panoramic view of the history, art, and traditional cultures of the native peoples on both sides of the Bering Strait. The 550 artifacts on display—including kayaks, harpoons, ivory carvings, beadwork, masks, drums, clothing, and weapons of war—demonstrate the elaborate arts, cultures, and history of the Pacific Rim from 20,000 years ago to the present. The museum's Dr. William F. Fitzhugh headed the North American curatorial team; Serghei Aroutiounov of the Institute of Ethnology, Moscow, headed the Soviet team. After closing at the museum in April 1989, the exhibition will travel to seven cities in the United States and Canada, as well as to Moscow, Leningrad, and two other cities in the Soviet Union.

"King Herod's Dream: Caesarea on the Sea," a Smithsonian Traveling Exhibition Service (SITES) exhibition, traced the colorful history of Caesarea, an ancient Mediterranean seaport and a significant center of early Christianity. It drew nearly 300,000 visitors during its showing

in the Thomas M. Evans Gallery from late March through mid-June. An ambitious "dream" of King Herod of Judea, Caesarea was intended to rival Alexandria, Egypt, as a harbor. It was built at the end of the Hellenistic age and survived through five other historical periods: Herodian, Roman, Islamic, Byzantine, and the Crusades. The design, development, and evolution of the city and the harbor can be traced by the underwater and land archaeological finds. Included in the exhibition, the result of fifteen years of archaeological research, are a statue of the Greek goddess Tyche, a hoard of Islamic jewelry, Byzantine mosaics, glassware, coins, and culinary items. The objects are supported by interpretive graphics, models, and three video components. All of these elements address the exhibition's two interrelated themes—archaeology and its techniques and the study of an important urban culture.

The exhibition was organized by SITES, the University of Maryland Center for Archaeology, the Caesarea Ancient Harbour Excavation Project, and the Joint Expedition to Caesarea Maritima, in cooperation with the Department of Antiquities and Museums of the State of Israel.

"Plains Indian Art—Continuity and Change," demonstrated how the work of contemporary Plains Indian artists is rooted in the tribal traditions of the past. The exhibition, organized by Dr. JoAllyn Archambault, director of the museum's Native American Indian Program, compared objects from Smithsonian collections made in the nineteenth century with similar objects made by contemporary Plains Indian artists.

"Birds and Flowers of the Fifty States: The Singer Stamp Series," featured the work of Arthur Singer, one of the best-known American wildlife painters, and his son Alan, a noted botanical artist. On view from November through March were the original Singer paintings of the official birds and flowers of the fifty states, which were reproduced in the best-selling set of 1982 U.S. commemorative stamps.

"Andrew Jackson Grayson: The Audubon of the West" was a showcase for paintings of the birds of the Pacific slope by a brilliant self-taught nineteenth-century American artist. Organized by the Oakland Museum in cooperation with the museum, this exhibition was the first public showing of Grayson's 156 surviving bird paintings. It was on view from April to July.

"Places of Power: Sacred Sites of the Americas and Pacific" featured sixty painted photographs of prehistoric ceremonial sites by Corson Hirschfeld, who is undertaking an exhaustive documentation of ceremonial sites

around the world. The exhibition was on view from September until January.

Other temporary exhibitions featured North American butterflies and the wildflowers that they feed upon; scientific illustration; wood and bronze insect sculptures; the research activities of museum scientists at Aldabra Atoll, home to many unique species and subspecies; and sea-shells from the William Bledsoe Collection.

In the Gem Hall two new additions to the museum's collection were placed on permanent display. A 5.03-carat red diamond was a bequest from the estate of S. Sydney DeYoung, and a 22,892.5-carat golden-yellow topaz was a gift of the six regional federations of mineralogical societies and Drs. Marie and Ed Borgatta. "The Incomparable," a 407.48-carat yellow diamond—the largest cut colored diamond in the world—was on temporary display during August 1988.

Planning is in progress for "Vision of the Americas," a new permanent exhibition hall that will explain the diversity and dynamics of Native American life. In 1988 members of the planning committee visited Alaska, Washington, and British Columbia to view Native American exhibits, museums, and cultural centers and meet with representatives of Indian tribal political and cultural organizations. One of the objectives of the trip was to learn how Indians wish to be represented in the exhibition hall.

Education

Relying on the assistance of the 365 docents who volunteer to provide educational services, the museum's Office of Education gives free programs for a variety of audiences, including families, students, and general visitors. The office operates the Discovery Room, a nationally acclaimed hands-on facility for children, which hosted more than 100,000 visitors, and the Naturalist Center, where natural history objects, books, and equipment for visitors aged twelve and older are available. It hosted approximately 17,500 visitors. The office also produces a quarterly calendar that is mailed to interested constituents and made available at the museum's information desks.

More than 65,000 students visited the museum in 1988 for lesson tours of permanent and temporary exhibitions. Pre- and postvisit instructional materials were available to enhance this experience. Special school programs included the fall Indian Walkaround for students in kindergarten through second grade, the fall Dinosaur Walk for nursery and kindergarten students, and National Science



Squirrel cuckoo, painting from the exhibition "Andrew Jackson Grayson, Audubon of the West," shown at the National Museum of Natural History/National Museum of Man April 14 to July 15, 1988.

office participated in the development of an exhibition of Asian and Pacific artists, "Across the Sea and over the Mountains: Immigration—Its Hardships and Rewards," produced in honor of Asian American Heritage Week. Special programs were also held during Black History Month and Hispanic Heritage Week. Other activities included demonstrations of Native American craftsmanship during American Indian Week, featuring Indian artists from the American Southwest and Plains states, and Scout Day, bringing more than 3,000 Boy and Girl Scouts to the museum for demonstrations and tours.

Week in April. Nearly a dozen teacher workshops were offered on weekends during the academic year and during the summer weeks.

More than 18,000 people attended the free films and lectures sponsored by the museum. Highlights included a film program, "South Africa Today: Life in a Divided Society," and special showings of "Ocean Symphony," a film featuring spectacular underwater footage of the earth's oceans.

Films, festivals, tours, and seminars were scheduled in conjunction with the exhibitions, "Ebla to Damascus," "King Herod's Dream," "Tropical Rainforests: A Disappearing Treasure," and "Crossroads of Continents." The

National Portrait Gallery

The National Portrait Gallery is dedicated to the exhibition and study of portraits of people who have made significant contributions to American history, development, and culture and of the artists who created this portraiture. The gallery offers a continuing exploration of the heritage and accomplishments of the American people by collecting, studying, preserving, and exhibiting portraits in all media as both historical and artistic documents.

Exhibitions

"American Colonial Portraits: 1700-1776" was the first of the two major exhibitions at the gallery in 1988 and the first in a series of exhibitions commemorating the bicentennial of the U.S. Constitution. It has been more than half a century since the subject was explored in a museum exhibition, and never before have comparable masterworks been gathered for study from public and private collections throughout the country, as well as from England, Ireland, Jamaica, Bermuda, and Canada.

In April King Carl XVI Gustaf and Queen Silvia of Sweden opened "Masterpieces from Gripsholm Castle: The Swedish National Portrait Collection." Part of the celebration of the 350th anniversary of Swedish settlement in America, this exhibition brought to the National Portrait Gallery sixty objects ranging from a late-medieval woodcarving to a contemporary photorealist painting. It was the second in a planned series of exhibitions displaying highlights from the great portrait collections of other nations.

Other exhibitions in 1988 were "Studies from Life: Portrait Photographs by Julia Margaret Cameron," composed of fifty-one images from the J. Paul Getty Museum, and "The Artist's Mother: Portraits and Homages," featuring works by twentieth-century artists who used their mothers as the subjects of, or inspirations for, their work. The latter exhibition was organized by the Heckscher Museum, Huntington, New York.

December 1987 marked the beginning of the first overseas tour of a major exhibition from the National Portrait Gallery. "Then and Now: American Portraits from the Past Century," a survey of important trends in American portraiture during the past 100 years, was generously sponsored by American Express International, Emery Worldwide, Inc., and Nippon Cargo Airways. It opened at the Hong Kong Museum of Art, followed by showings at the Hokkaido Museum of Modern Art in Sapporo, Japan, and the Sogetsu Gallery of Art in Tokyo.

Exhibitions of recent acquisitions were mounted in January and August. In July 1988 the gallery opened "Champions on *TIME*," an exhibition of twenty portraits of athletes featured on the cover of *Time* magazine. All but one of the portraits was from the gallery's collection.

Polaroid Corporation cosponsored "The Instant Likeness: Polaroid Portraits," which opened in August 1988. The photographs in the exhibition surveyed the forty years of instant photography's history as reflected in portraiture; they included the work of some of the most familiar names in American photography.

Loans made from the National Portrait Gallery collection to museums and institutions across the United States and abroad have tripled in number in the last two years. The Smithsonian Institution Traveling Exhibition Service (SITES) toured a portion of the gallery's Harmon Collection of outstanding black Americans. Another SITES exhibition from the gallery's collection, "Athletes and Heroes," completed a nearly three-year tour in 1988. The gallery's portrait of Mary Cassatt traveled to France and Canada and to New York for the Edgar Degas retrospective. Outgoing loans were made to several dozen museums and institutions during 1988.

Acquisitions

The presidential portrait series was enhanced by the gift of Everett Kinstler's portrait of President Ford from the Gerald R. Ford Foundation, as well as by the purchase of a miniature of President McKinley by Emily D. Taylor.

A major Gilbert Stuart portrait of the American statesman Rufus King was acquired through a partial gift from the James Smithson Society and through museum purchase funds. Another substantial acquisition was Marguerite Zorach's portrait, *Marianne Moore and Her Mother*, purchased with appropriated funds.

Through the Smithsonian Institution Collections Acquisitions Program, the gallery purchased Thomas Hicks's portrait of Edward Hicks, the "naive" Quaker artist best known as the painter of the several versions of *The Peaceable Kingdom*. Charles Peale Polk's portrait of the agricultural scientist David Wiley was also acquired, enhancing the gallery's holdings of early American scientists as well as adding to its collection of portraits by the family of Charles Willson Peale.

Among the most important gifts to the collection were a wax bust of Chief Justice John Marshall, by Robert Ball Hughes, and an oil portrait of psychoanalyst Karen Horney, by Suzanne Carvallo Schulein.

Major photographs purchased included a 1923 platinum print of cinematographer Karl Struss by Edward Weston; a dye-transfer color print of Judy Garland and Mickey Rooney by Harold Edgerton, the inventor of the stroboscopic flash; a self-portrait of W. Eugene Smith, the legendary photojournalist; a silver print of author Theodore Dreiser by Charles Sheeler; a portrait of Ezra Pound by Richard Avedon; a rare and unusual Barbara Morgan photograph of Martha Graham performing "Deep Song;" an early photograph of Lazlo Moholy Nagy taken in Paris by the Hungarian-born Ery Landau; an extremely rare Civil War carte de visite of Mathew Brady; and rare portraits of Igor Stravinsky by Edward Weston and Alfred Langdon Coburn.

Major gifts of photographs included two daguerreotypes and sixteen 17-by-21-inch Mathew Brady glass plate negatives from 1862 of the actor Edwin Forrest, from the collection of the Edwin Forrest Home for Retired Actors in Philadelphia; a collection of sixty portraits by Irving Penn, selected and donated by the artist; Joanne Verberg's unique 20-by-24-inch Polacolor ER portrait of artist Andy Warhol, given by an anonymous donor; and a portfolio of Hollywood portraits by George Hurrell, given by David Davis of Los Angeles.

The gallery acquired several fine drawings, including William Glackens's humorous image of Charles Dana Gibson, Reginald Marsh's portrait of Thornton Wilder (the gift of Wilder's sister), J. Alden Weir's charcoal of John Twachtman, Eastman Johnson's pencil of William Henry Vanderbilt, Cecilia Beaux's drawing of Henry James, an early Raphael Soyer self-portrait, and an ink sketch of Man Ray by Czech artist Adolf Hoffmeister. An important acquisition of four portraits of John Held, Jr., from his widow's estate was negotiated. In addition to a bronze bust and a sketch by Mahonri Young, it included caricatures by Peter Arno and Al Hirschfeld. The gallery was particularly lucky to find intriguing caricature material, including a watercolor cartoon of William Jennings Bryan and William Randolph Hearst by Peter Newell, a watercolor of Eddie Cantor, and a pencil of Senator Theodore Bilbo by Sam Berman.

Two significant early works on paper were added to the collection with the purchase of William Henry Brown's silhouette of Elias Howe and the rare and brilliantly colored 1775 mezzotint of John Hancock by Joseph Hiller, Sr. In addition, a Thomas Hart Benton self-portrait lithograph and posters depicting Joe Louis, General John Pershing, Lillian Russell, and Paul Robeson were acquired.

Publications

This year marked the culmination of the Publication Department's largest and most ambitious project ever, the newest edition of the *National Portrait Gallery Permanent Collection Illustrated Checklist*. This invaluable reference document reproduces some 4,000 portraits and includes two indexes.

The exhibition catalogue, *Then and Now: American Portraits of the Past Century from the National Portrait Gallery*, was published in Hong Kong, funded by a gift from a Hong Kong benefactor (Bay Apparel, Ltd.). Subsequently, a Japanese-language edition of the book was published in Tokyo, sponsored by Nihon Zooki Seiyaku (a pharmaceutical firm) and will reach new audiences in both Japan and the United States.

American Colonial Portraits 1700-1776, by guest curator Richard H. Saunders and staff curator Ellen G. Miles, and *Man of the Year: A TIME Honored Tradition*, by Frederick S. Voss, curator of the *Time* collection, were copublished with the Smithsonian Institution Press.

Education

The Education Department offered secondary-school classes several programs in commemoration of the bicentennial of the U.S. Constitution: "Before the Constitution: The Roots of Self-Government," "Constitution Quest: Why a Navy?" (developed and run jointly with the Navy Museum), and "The Constitution and the Presidency." These programs were officially recognized by the Commission on the Bicentennial of the United States Constitution for their exceptional merit, national significance, and substantial educational and historical value.

Special lectures were presented in conjunction with "The Artist's Mother: Portraits and Homages" by the guest curator and by five of the artists represented in the exhibition. For the exhibition, "Masterpieces from Grip-

Gustav III by Alexander Roslin, oil on canvas, 1777. Lent by the Sweden Nationalmuseum Collection, Gripsholm Castle, for the National Portrait Gallery's exhibition, "Masterpieces from Gripsholm Castle: The Swedish National Portrait Collection." (Photograph by Eugene Mantie)



sholm Castle: The Swedish National Portrait Collection," the gallery collaborated with the Washington Stage Guild in presenting a theatrical performance, "Voices from the Inferno: A Biographical Sketch of August Strindberg."

The Education Department was awarded a grant to develop a new public program series, "Cultures in Motion: Portraits of American Diversity." Intended to promote serious reflection on the multiethnic aspects of American history, "Cultures in Motion" will bring the gallery's collection to life through lectures, symposia, one-person biographical plays, recitals, concerts, and storytelling.

Research

Approximately 3,100 additional portrait records and about 40,000 newly edited records were added to the computerized data base of the Catalog of American Portraits, which serves researchers in American art history and American history. Fieldwork to gather new portrait material and photographing of collections continued, with five public collections and three private collections added to the survey. The Southern states survey completed earlier has been edited into the current computer system. Work is under way to include two large and important local collections in the data base—the portraits at the U.S. Capitol and those in the National Museum of American Art. The Catalog of American Portraits continued its active role in the Smithsonian-wide Collections Information System.

The Peale Family Papers staff continued transcribing, researching, and annotating selected letters and documents of the noted artist and naturalist Charles Willson Peale and his artist-sons Raphaele, Rembrandt, and Rubens. In April 1988 volume 2 of *The Selected Papers of Charles Willson Peale and His Family*, subtitled *The Artist as Museum Keeper, 1791–1810*, was published in two parts consisting of about 1,300 pages, illustrated in black and white and in color. With funds from the Smithsonian Institution Scholarly Studies Program and the Baltimore Gas and Electric Foundation, the project has embarked on a program to hire two consultants to assist the editor in the identification of portraits by Rembrandt Peale (1778–1860) and ultimately in the publication of a catalogue raisonné of Rembrandt Peale's work. An exhibition of Rembrandt Peale's portraits will follow the completion of the catalogue. The staff looks forward to the completion of the seven-volume series of *Selected Papers* within the next decade and to an updating of the catalogue rai-

sonné of the portraits and miniatures of Charles Willson Peale.

The American Art/Portrait Gallery Library acquired a large collection of exhibition catalogues and periodicals from the Corcoran Gallery of Art. In addition to the five data bases already available to library users, major national bibliographic data bases and other commercial on-line services are now accessible thanks to the latest technology.

Through contributions from the family and friends of Gloria Haas, a fellowship fund was established this year to enable graduate students in the history of art and other related fields to work at the National Portrait Gallery.

Office of Exhibits Central

The Office of Exhibits Central (OEC) supports the Smithsonian's exhibition programs by providing exhibit-related services throughout the Institution. In 1988 the OEC completed more than 300 projects serving nearly every museum, bureau, and office. The services that the office provides range from exhibit design and script writing and editing to all facets of exhibit production, including woodworking, plastics, modelmaking, taxidermy, packing, framing, and silkscreening.

"King Herod's Dream: Caesarea on the Sea," the office's largest single project of the year, is an example of the variety of expertise available in the OEC. Designed and produced for the Smithsonian Institution Traveling Exhibition Service, the exhibition opened in March in the Thomas M. Evans Gallery at the National Museum of Natural History. OEC staff were involved in every aspect of the exhibition: design, editing, graphics, model-making, and fabrication.

The office designed both the traveling exhibition and the installation in the Evans Gallery. Design decisions encompassed everything from the design of the exhibit cases to the position of objects inside them, from label typography to interpretive graphics, from wall color to traffic flow.

Large portions of the exhibit script were submitted in outline form. Using materials that the curators provided, the OEC editor researched, wrote, or rewrote the copy. The script was then carefully edited for accuracy and for appeal to a lay audience. The OEC graphics lab silkscreened labels, text panels, diagrams, and maps; mounted photographs; and mounted and framed prints.

"King Herod's Dream" called for several models employing a variety of techniques. Excavation drawings from several shipwrecks and frequent consultations with the curators enabled OEC staff to build a model of a merchant vessel from about A.D. 100. Full-size models of an excavation wall and a Crusader burial were cast in fiberglass. From materials provided by the curators, OEC staff also created a scale model of a trench showing archaeologists at work with their tools and equipment. Custom brackets were fabricated for about 140 objects to secure them while on display or for travel. Of particular note was the 1,200-pound marble statue of the city goddess, which required a specially designed bracket produced under OEC supervision.

The office built all the components and furniture for the exhibit, including interpretive panels with text and photographs, wall-hung vitrines, free-standing exhibit cases, and pedestals for large and small objects. Shipping containers with custom-designed interiors were also built

at OEC. The containers and the packing methods will ensure the safety of the objects during travel.

In addition to large and small exhibits, the office supported a number of other projects: brochure design and editing for the Smithsonian National Associate Program; printed materials for the Washington Craft Show sponsored by the Women's Committee of the Smithsonian National Associates; interpretive panels and silkscreening for the Festival of American Folklife; and illustration and graphics for the Office of Horticulture's presentation at the Philadelphia Flower Show.

Office of Horticulture

Managing more than forty acres of gardens and grounds, caring for the plants in museum interiors, and providing plants and floral arrangements for Smithsonian Institution special events and exhibitions are among the responsibilities of the Office of Horticulture (OH). In addition to this full range of horticultural services, the office develops educational and outreach activities and exhibitions for local, national, and international audiences. Large collections of living plants and horticultural artifacts and images are maintained for use in all of these programs.

The new museum complex on the Quadrangle, with its interior plantings and the Enid A. Haupt Garden, has substantially increased the scope of the office. In 1988, 83,000 annuals and 7,000 pot plants were raised; these, along with 50,000 tulip bulbs, were planted and maintained on the grounds and in museum interiors. Six hundred ninety-five special events alone required the production, preparation, pickup, and delivery of 13,500 plants and 328 floral arrangements. The office also selects, installs, and cares for all landscape materials and interior plants for the new National Air and Space Museum Restaurant.

Program Highlights

Among many projects accomplished during the past year was the dedication on May 25, 1988, of the Mary Livingston Ripley Garden. Located between the Arts and Industries Building and the Hirshhorn Museum and Sculpture Garden, the garden was established in 1975 by the Women's Committee of the Smithsonian Associates. It has now been renovated and is named for the committee's founder. Over the years the committee has generously supported the development of the garden. This year's grant purchased plants, signs, and an irrigation system. Hilda van Roijen, first chair of the committee, funded the purchase and restoration of an antique cast-iron "Gothic" settee, one of the earliest and most popular nineteenth-century styles. Mrs. Horace Peters, also a committee member, donated a rare nineteenth-century labeled "Bouquet" settee.

As part of the official celebration of Mrs. Lyndon B. Johnson's seventy-fifth birthday, the office organized the exhibition, "Native American Flora" in the Arts and Industries Building Rotunda. Photo panels and native plants portrayed Lady Bird Johnson's well-known efforts to conserve wildflowers. The office coordinated a reception in honor of Mrs. Johnson and her contributions to conservation on April 29 in the Rotunda.

A holiday tradition at the Institution, the eleventh annual "Trees of Christmas" exhibition was held in the National Museum of American History. Ten new collections of ornaments created by American craftspeople were displayed and then donated to the office. Stenciling, tin punch, candlewicking, rug hooking, and macramé were among the handiwork techniques new to this popular show.

The office was pleased to assist U.S. Chief of Protocol Selwa Roosevelt with the extensive Blair House renovation project. A fine antique cast-iron fountain, c. 1850, from the prominent American foundry of J. W. Fiske, and two pairs of antique cast-iron urns were loaned for use in the handsome new courtyard garden.

Educational Outreach

In March the office received the Emile H. Geshick Award for its display in the Pennsylvania Horticultural Society's Flower Show in Philadelphia. The exhibit was a remarkable re-creation of part of the interior of Horticultural Hall at the time of the Centennial Exposition.

James R. Buckler, director of the Office of Horticulture, and Kathryn Meehan, museum specialist, were the curators of a traveling exhibition, "Victorian Gardens: A Horticultural Extravaganza," developed with the Smithsonian Institution Traveling Exhibition Service and the Office of Exhibits Central. The exhibition started a fully booked three-year itinerary in May.

To respond to requests for information, photographs and illustrations, lectures, and tours of gardens and greenhouses, the office trained volunteers to help organize graphics, handle processing, and lead tours.

Director Buckler led a week-long Garden Study Tour in May for the National Associate Program (SNAP) and lectured for the SNAP symposium on historic horticulture, held in Greenwich, Connecticut. Buckler also lectured at the Ohio Historical Society, the Alexandria (Virginia) Forum, Morris Arboretum, National Master Gardeners Conference, American Ivy Society, and Virginia Museum of Fine Arts.

Collections Management

Both the living plants and the artifacts collections have grown. Four hundred fifty-one orchids, bromeliads, ferns, and ivies were acquired. Two orchids grown in greenhouses from seedlings were selected while in bloom for awards by the American Orchid Society.



"Exotic Plants: Horticultural Hall 1876," the Office of Horticulture exhibition at the 1988 Philadelphia Flower Show, won the Emile H. Geshik Memorial Award.

To date 9,000 35-millimeter slides and 2,000 glass plates have been received for the Garden Club of America Slide Library of Notable Parks and Gardens. The exquisite hand-colored glass plates, made in the 1920s and 1930s, show great American gardens, some no longer in existence. They represent an unparalleled archives of garden history. The Frances Jones Poetker Collection of more than 300 unique hand-bouquet holders was photographed and accessioned, primarily by volunteer technicians Marilyn Hanlon, Ursula Pariser, and Sally Tomlinson.

During 1988 the Office of Product Licensing successfully negotiated a licensing contract with furniture manufacturer Brown Jordan for a Smithsonian Collection.

Two groups of garden furniture, Day Lily and Fern Leaf, were based on pieces in the Office of Horticulture collection and are now being marketed nationwide. Revenues from the sales of these reproductions will be used to enhance the office's collections.

Office of Museum Programs

The Office of Museum Programs (OMP) is the museum training and services arm of the Smithsonian. Under the direction of Jane R. Glaser, the office provides extensive professional development services to those who work in museums in the United States and throughout the world. These services include workshops, seminars, internships, publications and audiovisual materials, short-term residencies for visiting professionals, career counseling, and professional museum consultations. The office also houses the Museum Reference Center, a branch of the Smithsonian Institution Libraries.

Workshops

In collaboration with domestic and international museum organizations, the Training Program develops and operates one- to five-day workshops on museum practices. Faculty are drawn from all bureaus and offices of the Smithsonian, as well as from museums and universities across the country. In 1988 the Washington Workshop Series consisted of eighteen workshops at the Smithsonian, attracting more than 400 participants from all parts of the United States, two U.S. territories, and eleven foreign countries. Eighteen on-site workshops were conducted at institutions throughout the United States and in Trinidad, Barbados, and Puerto Rico. The Organization of American States, UNESCO, and the University of Puerto Rico were collaborating organizations. A special workshop, "Planning a Small Local Museum," was conducted for Micronesian historic preservation and museum professionals in collaboration with the National Park Service. This was the inaugural workshop in a training series for professionals from the U.S. Trust Territories and the Federated States of Micronesia.

Internships and Visiting Professionals

The Internships in Museum Practices Program provides placements at the Smithsonian for undergraduate and graduate students and for museum professionals. In 1988 participants came from the United States, Costa Rica, Greece, Malaysia, Mexico, and the Sudan. The program sponsored the eighth annual Museum Careers Seminars Series for forty Washington, D.C.-area museum interns. During this seven-week course, professionals from the Smithsonian and other area museums discussed museum operations and career opportunities.

The Visiting Professionals Program organized short-

term programs for twenty-nine museum professionals from this country and thirty-one from abroad. The program also developed a special seminar on museum practices for a group of Danish museum professionals. The fifth annual project on museum management for European museum administrators, cosponsored with the U.S. Information Agency, introduced concepts of management and governance in American museums to museum directors from seven countries.

Native American and Minority Programs

The goal of the Native American Museums Program (NAMP) is to strengthen the educational and professional capabilities of Native Americans by offering a full range of training and information services. A training needs assessment conducted in 1988 demonstrated that American Indians were seeking better collaboration for sharing resources and were interested in learning about new museum models. The NAMP's cooperation with the Ak-Chin Indian Community in Arizona presented an opportunity to conduct research in the United States and Canada on tribal museums and ecomuseums, a new museum concept that includes natural heritage conservation and public participation. Eight Ak-Chin staff members attended a special NAMP workshop on museum practices and information resources.

Under the 1987-88 Awards for Minority Museum Professionals Program, twenty-four museum professionals received financial and logistical support for their attendance at Office of Museum Programs workshops and their participation in one-week Smithsonian residencies. For the first time in the program's five-year history, participants came from the outlying areas of Palau, Guam, Alaska, Hawaii, and Puerto Rico. An Institution-wide review panel selected thirty-one professionals as recipients of the 1988-89 awards.

Audiovisuals, Publications, and Reference Services

The Audiovisual Program produces and distributes instructional videotapes and slide-cassette programs on preventive care, conservation, education, and other museum-related topics. In collaboration with the OMP's Kellogg Project, the program produced a thirty-six-minute film, *Museum and Community*, which focuses on four museums that have developed exemplary public education programs. Other new productions include two

slide-cassette programs, *Connoisseurship in the Visual and Decorative Arts: The Educated Eye and More than Meets the Eye*, and a film videotape, *Horticulture in Museums*.

The Museum Reference Center responded to more than 8,500 inquiries from within Smithsonian, across the United States, and around the world this year. Three issues of the center's bulletin, *Museworld*, were published and distributed to museum documentation centers abroad, Smithsonian libraries, and Smithsonian staff members. Nine of the approximately eighty bibliographies that the Museum Reference Center distributes were revised this year; the topics range from museum marketing to transportation museums to planning and organizing a new museum.

A redesigned and updated edition of *Museum Studies International* was published in 1988. This comprehensive directory lists more than 400 degree programs, courses, internships, fellowships, seminars, and workshops offered at the undergraduate, graduate, and midcareer levels in this country and abroad. Cosponsored by the International Council of Museums Committee for the Training of Personnel, the new edition features articles about selecting and evaluating a museum studies program.

Studies by Museums for Program Planning and Exhibition Evaluation, 1977-1985, a bibliography compiled from responses to an OMP survey, was published this year. The citations, most of which are unpublished studies, are available for use in the Museum Reference Center.

Kellogg Project

The Kellogg Project, the office's six-year-long special program to expand the educational role of museums in their communities, was completed during 1988. Among the accomplishments that had national impact were three national colloquia, twelve demonstration museums that created model museum educational projects, residencies at the Smithsonian, and regional and topical workshops.

This year the Kellogg Project broadened its Museum Professionals Program, making all senior-level employees in museums eligible for ten-day residencies at the Smithsonian. *Museums and Adult Education* is being published jointly by the Kellogg Project and the National University Continuing Education Association. In addition to the film produced with the OMP's Audiovisual Program, other publications, videotapes, and a complete project evaluation will be made available as a result of the project.

As the focal point for the management of all museum objects and specimens, the Office of the Registrar regards as primary the development and implementation of policies and procedures that promote and strengthen collections management. The office celebrated one year of residency in the Smithsonian Castle in 1988.

During this fiscal year the office launched a project to review *Office Memorandum 808: Collections Management*, which provides institutional guidance to bureaus and offices responsible for museum collections. Informed by the assembly of collection managers—curators, registrars, scientists, conservators, archivists, and librarians—and specialists in audit procedures, risk and information management, law, and security, this document discusses the issues, authority, and responsibility for the care and use of the national collection. Led by Joseph Wiley, small working groups of bureau staff reviewed and revised designated sections, stressing contemporary thinking related to multiethnic collecting patterns and biodiversity. The collaborative process, the issues raised, the breadth of collection types considered, and the flexible format make the revised office memorandum a useful guide for the international museum community.

Physical care of the national collection constitutes only half the activity of the Office of the Registrar. Equal effort is dedicated to the care of the intellectual collection—data, documents, and records. In collaboration with the Office of Information Resource Management and bureau representatives, the office directs the transfer of collections information from outdated information technologies to modern computing media. In 1988, one million records were made available through the interactive technologies of the Collections Information System. These records reside on a mainframe computer, along with a small machine system at the Cooper-Hewitt Museum, an image-processing project at the Hirshhorn Museum and Sculpture Garden, and local transaction programs at the National Museum of American History. Standards that guide the further development of the system have been developed and embraced by the museum participants.

The publication of *Registrars on Record: Essays on Museum Collections Management* in September 1988 completed a four-year editorial effort by Mary Case, director of the Office of the Registrar. Published by the American Association of Museums, *Registrars on Record* chronicles the daily challenges of working with priceless works of art, irreplaceable icons, and countless natural history specimens. It also defines the wide scope of museum registration and provides historical perspective. Smithsonian staff members Margaret Santiago of the Na-

Smithsonian Institution Traveling Exhibition Service

tional Museum of Natural History and Ellen Myette of the Renwick Gallery contributed chapters, as did a dozen other museum professionals.

The membership of the Registrar's Council, which expanded in 1988 to include metropolitan Washington collections management specialists, grew to nearly 150. Programs included a timely range of subjects—managing a building for collections care, registration methods at the zoo, art theft, disaster preparedness, and foreign loans and acquisitions.

On the international front, the office directed the first stages of a worldwide survey of computer use in museums. This survey, which used Washington museums as the pilot group, reached twelve countries in 1988 and will continue throughout 1989 and 1990. Participants in the International Council of Museums Documentation Committee meeting in Barcelona, Spain, discussed the 1988 results and expanded the program into more countries.

The Smithsonian Institution Traveling Exhibition Service (SITES) develops exhibitions on a range of topics and circulates them to museums and other educational and cultural institutions throughout the United States and abroad. During 1988 SITES organized twenty-four new exhibitions, among them three complex projects—exhibitions on fine art, natural history, and archaeology—that illustrate the breadth and diversity of the SITES program.

"New Horizons: American Painting, 1840–1910," the reciprocal exhibition for "Russia, The Land, The People," opened in Moscow in November 1987. In conjunction with the exhibition's tour of four cities in the Soviet Union, SITES also arranged for concerts, symposia, and special events for members of the Smithsonian Board of Regents. The exhibition was supported by funding from the Armand Hammer Foundation and from the PepsiCo Foundation.

"Tropical Rainforests: A Disappearing Treasure" began a five-year tour in May 1988 with a seven-month showing in the International Gallery of the S. Dillon Ripley Center. Organized by SITES with the World Wildlife Fund, the exhibition surveys rainforest ecology and destruction in a global context through multimedia presentations, dioramas, models, and interactive displays. The exhibition and its public programs were supported by a major grant from the John D. and Catherine T. MacArthur Foundation, with additional funds from the Smithsonian's Special Exhibition Fund, the George Gund Foundation, the Wm. Wrigley Foundation, the James Smithsonian Society, and the Smithsonian's Educational Outreach Program. The SITES exhibition book, *People of the Tropical Rain Forest*, was copublished with the University of California Press.

"King Herod's Dream: Caesarea on the Sea," which opened at the National Museum of Natural History in March 1988, introduces land and underwater archaeology techniques involved in researching and reconstructing Herod's famed ancient harbor. The exhibition was organized with the University of Maryland Center for Mediterranean Archaeology, the Caesarea Ancient Harbour Excavation Project, and the Joint Expedition to Caesarea Maritima, in cooperation with the Department of Antiquities and Museums of the State of Israel.

One-third of SITES' new exhibitions were organized in cooperation with Smithsonian bureaus. Among them were "Exploring the Planets" and "Into the Sunlit Splendor" with the National Air and Space Museum, "ZooArk" with the National Zoo, "Victorian Gardens" with the Office of Horticulture, "The Grand Generation" with the Office of Folklife Programs, and "Official Images" and "Field to



Secretary of State and Mrs. George P. Shultz viewed SITES' exhibition "Ebla to Damascus: Art and Archaeology of Ancient Syria" in the Evans Gallery at the National Museum of Natural History/National Museum of Man. In April 1988, the exhibition traveled to Japan as part of the Silk Road Exposition held in Nara. (Photograph by Chip Clark)

Factory" with the National Museum of American History. Research and program assistance with "Tropical Rainforests" was provided by the Smithsonian Tropical Research Institute (STRI), the International Activities Council, and a curatorial review committee that included members from the National Zoo, STRI, and the National Museum of Natural History.

SITES continued to collaborate with other museums in the presentation of "Athletes: Photographs 1860-1986" (International Center for Photography, New York), "Computers in Your Pocket" (Computer Museum, Boston), "Master Watercolors and Drawings from the Norton Gallery of Art" (West Palm Beach, Florida), "Soundtracks" (Staten Island Children's Museum, New York), "Tracks in the Sky" (California Academy of Sciences, San Francisco), "Coverlets: New Threads in Old Patterns" (Mountain Heritage Center, Cullowhee, North Carolina), and "The Art of Botany" (New York Botanical Garden, Bronx, New York).

SITES was fortunate to receive substantial funding for its exhibitions and programs from a variety of sources. In addition to those already mentioned, grants totaling in excess of one million dollars were received from corporations, foundations, and the Smithsonian's Special Exhibition Fund. One of the more innovative subsidies was provided by the Pepsi-Cola Bottling Company and its local bottlers for program support of individual exhibitors for "Field to Factory."

Eileen Rose, associate director for program, served as acting director of SITES during 1988. Anna R. Cohn was named director by Secretary Adams and began her tenure in September 1988. Cohn, an art historian and educator, has been associated with SITES over the past several years as a guest curator and project director for "The Precious Legacy" (1983-85) and "Generations" (1987-88).

Exhibition Summary

New Exhibitions, October 1, 1987, to September 30, 1988:

The Art of Botany

Athletes: Photographs, 1860-1986

Ceramics of the Weimar Republic

Computers in Your Pocket: The History of Hand-Held Calculators

Coverlets: New Threads in Old Patterns

Exploring the Planets

Field to Factory: Afro-American Migration, 1915-1940 (two copies)

From Site to Sight: Anthropology, Photography, and the Power of Imagery

Glamour and Allure: The Hollywood Photographs of George Hurrell

The Grand Generation: Memory, Mastery, Legacy
Into the Sunlit Splendor: The Aviation Art of William S. Phillips

King Herod's Dream: Caesarea on the Sea

Master Watercolors and Drawings from the Norton Gallery of Art

New Horizons: American Painting, 1840-1910

Official Images: New Deal Photography

A Russian Impressionist: Paintings and Drawings by Leonid Pasternak, 1880-1945

Soundtracks

Spectacular Vernacular: Traditional Desert Architecture from West Africa and Southwest Asia (second edition)

Tracks in the Sky: Wildlife and Wetlands of the Pacific Flyway

Tropical Rainforests: A Disappearing Treasure
 Victorian Gardens: A Horticultural Extravaganza
 Visions of Flight: A Retrospective from the NASA Art
 Collection
 What Style Is It? (two copies)
 ZooArk

Exhibition Tours, October 1, 1987, to September 30, 1988

Number of bookings	333
Number of states served	44
(includes Washington, D.C., Puerto Rico, and Guam)	
Number of cities served	202
Estimated audience	10 million
Exhibitions listed in 1988 <i>Update</i>	116
(catalogue of SITES exhibitions)	
New exhibitions produced this year	24

PUBLIC SERVICE

Ralph C. Rinzler, Assistant Secretary for Public Service

National Demonstration Laboratory for Interactive Educational Technologies

Through the National Demonstration Laboratory for Interactive Educational Technologies (NDL), the Smithsonian Institution has made a commitment to strengthening the nation's educational system through new and innovative technologies. A cooperative project of the Smithsonian and the Interactive Video Consortium (IVC), a group of public broadcasting stations seeking ways to use interactive technologies to enrich programming, the NDL is a national resource for disseminating information, demonstrating new technologies, and encouraging the development of interactive projects.

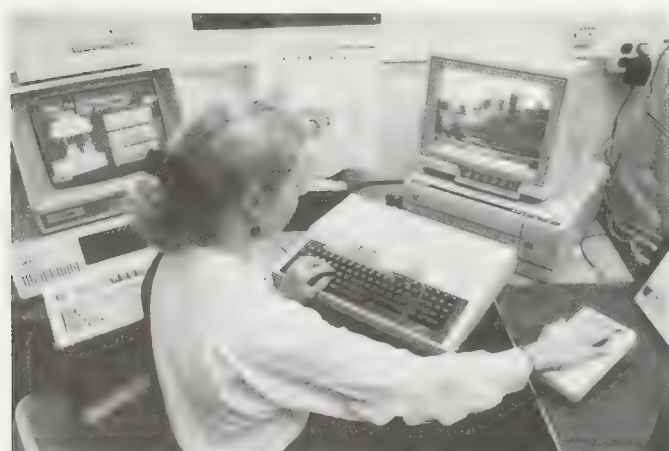
The coupling of interactive computer programs with multimedia materials offers educators the ability to make maximum use of scarce resources, address curriculum problems, achieve success with problem students, and reach new groups of learners. Using interactive programs, students can review, annotate, question, respond to, and see relationships within a rich data base that includes audio, video, and textual material. Schools, museums, public broadcasting stations, and other educational institutions and organizations are hailing the potential of interactive technologies as key ingredients to both formal and informal learning.

To strengthen its ties to the academic community, the NDL has established a Research Consortium composed of prestigious academic institutions and educational organizations. With the consortium's assistance, the NDL staff will develop criteria for research in educational ap-

plications of interactive video and evaluation of interactive materials. The laboratory also intends to conduct and issue needs assessments. Additional activities include establishing a data base of interactive video information and identifying elements of educational curricula that are particularly suitable for interactive video applications.

The laboratory features an extensive array of hardware and software for review and evaluation by visitors. The NDL does not promote individual products, but rather makes potential users aware of the variety of options available to them. Demonstrations are offered several times weekly by appointment. As many Smithsonian offices consider the development of interactive capabilities and displays, Smithsonian staff have found the laboratory to be a valuable resource.

Jacqueline Hess joined the National Demonstration Laboratory in April 1988 as its new director. In June the NDL received an operational funding grant from the Corporation for Public Broadcasting.



Susan Ueberhorst, program manager for National Demonstration for Interactive Educational Technologies, demonstrates two of the many interactive programs at the lab.

National Science Resources Center

The National Science Resources Center (NSRC) was established in 1985 as a joint undertaking of the Smithsonian Institution and the National Academy of Sciences. The NSRC's mission is to contribute to the improvement of science and mathematics teaching in the nation's schools by establishing a science and mathematics curriculum resource center and information data base, developing resource materials for science and mathematics teachers, and offering a program of outreach and leadership development activities.

The pressing need to start in the early years to improve the scientific and technological literacy of young people has led the NSRC to place a high priority on developing programs to reform science teaching in the nation's elementary schools. Several projects are under way in this area.

NSRC Elementary Science Resource Database and Guide. During 1988, the NSRC developed an elementary-level science resource collection and computer information data base. The resource collection will be used by

school systems and regional science education centers that are working to improve their elementary science programs and by participants in NSRC workshops and conferences. The information data base includes annotations written by teachers, as well as bibliographic information about the materials in the resource collection. The data base was published as a guide, *Science for Children: Resources for Teachers*, by the National Academy Press in October 1988.

Science and Technology for Children. This four-year elementary science materials development project, supported by a grant from the John D. and Catherine T. MacArthur Foundation, will make hands-on science manageable for elementary-school teachers and link it to the broader curriculum through a strong emphasis on reading, writing, and mathematics. The Science and Technology for Children project will develop twenty-four instructional units for grades 1-6 on topics in life science, physical science, earth science, and technology. After they are tested in elementary-school classrooms, these units will be revised, published, and distributed to school systems throughout the country.

As another component of Science and Technology for Children, the NSRC will sponsor leadership institutes to prepare selected teachers and science supervisors to organize elementary science improvement projects in their school districts. The center will also provide technical assistance to help school systems design effective inservice teacher education programs and establish resource centers to supply teachers with science materials and apparatus.

NSRC Elementary Science Network. The NSRC is developing a network of teachers, scientists, science educators, and school administrators who are working to improve the teaching of science in the nation's schools. To communicate with the 20,000 network members, the center published the first issue of *NSRC Newsletter* in June 1988.



Children in the Milwaukee Public Schools working on elementary science activities. The Milwaukee Public Schools is one of several large urban school districts participating in the National Sciences Resources Center network. (Photograph by Robert Zeman)

Office of the Committee for a Wider Audience

In 1988 the Office of the Committee for a Wider Audience (OCWA) continued its role of extending the reach of Smithsonian programs to segments of the public that traditionally have been underrepresented in the institution's audience. The office has helped museums, offices, and bureaus throughout the institution in their outreach efforts. Major activities for the year included the organization of a radio pilot series, a celebration of Martin Luther King's birthday, and the design of a cultural tour to the Caribbean. The office also collaborated in the launching of a public awareness campaign carried out by the Office of Public Affairs.

In an effort to identify the Smithsonian with the preservation and dissemination of information on black American culture, to inform black Americans about their culture, and to build relationships among black institutions, artists, and the general public, the OCWA initiated a radio pilot series. Funded by the Women's Committee of the Smithsonian Associates and produced in cooperation with the Office of Telecommunications and *Smithsonian*

sonian magazine, the programs were aired on urban contemporary radio stations across the country. The series marked the centerpiece of the OCWA's summer public awareness marketing campaign.

The OCWA systematically ensures participation of minority groups at receptions and special events. About 350 guests attended the Martin Luther King birthday celebration on January 18 at the National Museum of Natural History; 40 percent were Hispanic and 60 percent represented a cross section of other groups. The event, which was sponsored by the Smithsonian's Cultural Education Committee, featured Dr. Frank Bonilla, distinguished Thomas Hunter professor of sociology and director of the Center for Puerto Rican Studies at Hunter College in New York City. His lecture was titled, "From Racial Justice to Economic Rights: The New American Dilemma." Los Pleneros de la 21, a Puerto Rican bomba and plena musical group from New York, provided the entertainment.

In conjunction with the Smithsonian National Associ-



Los Pleneros de la 21, a Puerto Rican Bomba and Plena musical group from New York. The group performed at the Martin Luther King Celebration in honor of Dr. Martin Luther King, Jr., sponsored by the Smithsonian Cultural Education Committee.

Office of Elementary and Secondary Education

ate Program, the OCWA is designing cultural study tours to developing nations. The first, a tour of the Caribbean, is scheduled for the winter of 1989.

Exposure to all facets of the institution continues to be an essential part of building new audiences. Throughout 1988 the OCWA continued to hold discussions with bureau and office directors on the progress of wider audience initiatives.



One of the participants in the Office of Elementary and Secondary Education's National Seminar, Connie Kirby studies a spinning wheel in the National Museum of American History. (Photograph by Jonathan Barth)

Through teacher training programs, publications, special education programs, and precollege training for young people, the Office of Elementary and Secondary Education (OESE) helps teachers and students reap the full potential of museums as educational resources. Working with other Smithsonian education offices, the OESE aims to make known the instructional value of museums and museum objects.

The OESE's symposia and courses for teachers demonstrate how to teach by using a museum-oriented approach. During 1988 the office collaborated with education departments around the Smithsonian to organ-

ize ten courses for teachers from the Washington, D.C., area and one graduate-level course for instructors from around the country. In addition, as part of an ongoing effort to foster more productive relationships between museums and school systems nationwide, the OESE's Regional Workshop Program sponsored a partnership in Wilmington, North Carolina, one outcome of which was a day-long event involving museums and more than 500 teachers. A Teacher Internship Program built on the work of the Regional Workshop Program by training high school teachers from four communities to serve as liaisons between their local museums and schools.

The office also organizes special programs that focus on important events and issues. In 1988 the OESE collaborated with the Office of Interdisciplinary Studies on a symposium, "Afro-Americans and the Evolution of a Living Constitution." Classroom materials growing out of the presentations were published in *Update*, an American Bar Association magazine.

OESE periodicals for teachers continued to bring the Smithsonian into the classroom, both in the Washington, D.C., area and across the nation. *Art to Zoo*, a quarterly newspaper, reached 70,000 teachers nationwide with information about how to use local resources to teach such subjects as "animal communication" and life on the World War II home front. *Let's Go to the Smithsonian*, a newsletter circulated to schools in and around Washington, alerted about 12,000 teachers to events at the Smithsonian.

The office's Summer High School Internship Program brought forty-two recent high school graduates to the Institution for two five-week sessions. The young people learned about museum careers while assisting Smithsonian professional staff in such tasks as installing exhibitions, adapting computer programs, researching topics in Afro-American history, and building display cases.

On April 29, the OESE convened the second meeting of the Smithsonian Advisory Council on Education. Appointed by Secretary Adams, the council is charged with helping to stimulate and shape Institution-wide priorities and directions in education. Developing wider audiences was the topic of this year's meeting, as participants explored ways in which Smithsonian educators could attract to their programs such currently underrepresented groups as Hispanic Americans, Native Americans, blacks, Asians, and disabled people.

Through scholarly research, professional advocacy, and public programs, the Office of Folklife Programs engages in cultural conservation and representation activities that encourage continuity, integrity, and equity for traditional cultures in the United States and abroad. Highlights of the year included a successful Festival of American Folklife, a cultural exchange program with the Soviet Union, a lecture series on South Africa, and the first publications of Smithsonian Folkways Records.

Festival of American Folklife

The twenty-second annual festival on the Mall drew an estimated 1.5 million people to a vibrant "living museum," giving traditional artists needed national visibility and exposing the public to the skills, knowledge, and creativity of diverse peoples. At this year's festival, held June 23-27 and June 30-July 4, the focus was the folklife of Massachusetts, the music of the Soviet Union, the culture of immigrants to metropolitan Washington, D.C., and the work of the American Folklore Society.

The Massachusetts program examined continuity and change in the agricultural, maritime, small-town, and urban traditions of the state and featured talks and demonstrations on topics ranging from city gardening to computer assembly. Soviet performers treated festival visitors to a sampling of musical traditions of the Soviet Union. In "Migration to Metropolitan Washington: Making a New Place Home" the festival explored how immigrants to the Washington, D.C., area have preserved and adapted their traditions. Another festival program celebrated the centennial of the American Folklore Society, and the Festival Music Stage again featured performances and evening dance parties.

The festival reached millions more people beyond the Mall through network television coverage, National Public Radio and "Radio Smithsonian" series, and many newspaper and magazine articles. Portions of some festival programs were remounted in other locations. The Massachusetts exhibition was on view in Holyoke, Massachusetts; Soviet musicians performed in the S. Dillon Ripley Center and in New York; and the American Folklore Society display was installed in Cambridge, Massachusetts.

Folklife Research

During 1988 scholars conducted studies on the accessibility of natural and cultural resources needed to continue



The men's choir "Elesa," from Georgian SSR, perform polyphonic choral music at the 1988 Festival of American Folklife's Soviet music program. (Photograph by Rich Vargas)

the traditions of several American Indian tribes; ethnographic research on Jamaican-American cultural identity and its expressions; and analytic work on the folk tales of Southeast Asian immigrants. Training for native and community scholars was conducted as an integral part of all office research projects.

Senior ethnomusicologist Dr. Thomas Vennum, Jr., published the monograph, *Wild Rice and the Ojibway People*, which examines Ojibway ethnobotany, cultural expressions related to rice harvesting and subsistence, and current cultural conservation issues. The Smithsonian Folklife Studies series released the documentary film, *Kathputli: The Art of Rajasthani Puppeteers*, which explores traditional Indian stringed puppetry.

Smithsonian Folkways Records

Dr. Anthony Seeger, an internationally renowned anthropologist and ethnomusicologist, was named founding curator of the Folkways Collection. Among the first recorded sound publications in the Smithsonian Folkways series are *Folkways: The Original Vision*, a compilation of songs by Woody Guthrie and Leadbelly, and *Music of the Soviet Union*, based on the Soviet program at the

1988 Festival of American Folklife. Both publications include scholarly notes, maps, and bibliographic references.

The Office of Folklife Programs collaborated with Columbia Records to produce *Folkways: A Vision Shared*, featuring Bruce Springsteen, Bob Dylan, Willie Nelson, Emmylou Harris, Pete Seeger, and other artists performing Guthrie and Leadbelly songs. Donated artists' royalties from the recording will help the Smithsonian recoup the costs of acquiring Folkways Records and support future scholarly research and Folkways recording projects.

Special Projects

Distinguished South Africans addressed the historical, communal, and personal dimensions of apartheid in a lecture series cosponsored by the office, the Smithsonian Resident Associate Program, the National Museum of Natural History Department of Anthropology, and Howard University. A National Public Radio series and a Smithsonian Institution Press publication based on the series, which was called "South Africa Today: Life in a Divided Society," are being developed.

The office has initiated a long-term program of cultural exchange with the USSR Ministry of Culture, Melodiya Records, and various scholarly organizations as a result of the performances of forty Soviet musicians at the Festival of American Folklife and the participation of American music groups at the International Folklore Festival in Moscow. Folkways Records and Melodiya publications, Smithsonian World television treatment, and Radio Smithsonian broadcasts enhanced this initial exchange.

Staff Changes

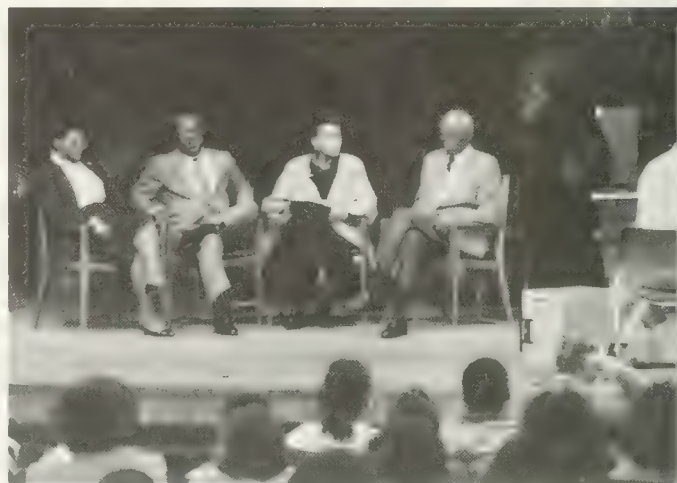
Dr. Peter Seitel, director of the Office of Folklife Programs for the past five years, returned to the position of senior folklorist. Dr. Richard Kurin was acting director of the office during 1988.

Office of Interdisciplinary Studies

The Office of Interdisciplinary Studies contributes to both the increase and the diffusion of knowledge in its efforts to strengthen integrative learning and research inside and outside the Institution and to reach a wider audience. Public officials, business and industry leaders, educators, philanthropists, media representatives, students, and interested members of the general public join in seminars with scholars from a variety of fields to explore gaps in existing knowledge and speculate on the implications of new research findings in the physical, natural, and human sciences. The office also coordinates programs commemorating historic events and anniversaries of the publication of classics in philosophy, science, and literature. Books and educational materials are commonly generated from the major symposia.

A highlight of this year's programs was a second symposium organized for the bicentennial of the U.S. Constitution, "Afro-Americans and the Evolution of a Living Constitution." According to Eddie N. Williams, president of the Joint Center for Political Studies, which cosponsored the program, the purpose of the undertaking was not to "lament the shortcomings or the limited reach of the original document" but to celebrate "its vitality and flexibility" and the creative role black Americans have played in its 200 years of growth. Thirty distinguished scholars, jurists, and civic leaders gave lectures and participated in panels on constitutional interpretation. They also examined how the struggles of black Americans for full citizenship have affected other groups and communities, namely women, Native Americans, and Hispanic Americans. The March 15-16, 1988, symposium featured a special workshop for teachers and a teleconference that was broadcast to thirty-six colleges and carried on public radio stations across the United States. As the major bicentennial forum in Washington, D.C., to deal with the relationship of Afro-Americans to the Constitution, the program was notably successful in opening new channels of communication and increasing interest in issues of national concern.

Other programs dealt with the global food supply and science education. At the October 6-7, 1987, "Science, Ethics, and Food" colloquium, a group of concerned scholars and representatives of governmental and private organizations in the United States and abroad addressed pressing problems of global food production and distribution. The colloquium, which initiated a multiyear collaborative effort between the Smithsonian and the General Foods Fund, Inc., coincided with the presentation of the first General Foods World Food Prize. A seminar on "Science Education: A Challenge for Excellence in



"Afro-Americans and the Evolution of a Living Constitution" teleconference, March 16, 1988. From the left: Mary Berry, Julius Chambers, Renée Poussaint (moderator), and John Hope Franklin. (Photograph by Frank Dexter Brown, Joint Center for Political Studies)

America's Future" demonstrated the viability of the "Voluntarism and the Public Interest in American Society" series begun in 1971 to promote private-sector initiatives in public policy. Cosponsored by the ARCS (Achievement Rewards for College Scientists) Foundation, the May 5, 1988, discussion on Capitol Hill attracted more than 300 people.

A new forum for Smithsonian staff and fellows, "Ways of Knowing," was launched in November. Sessions during the first year provoked lively exchanges on such multifaceted subjects as perception and computers. Plans call for continued efforts to foster the flow of ideas among staff and fellows in different disciplines and bureaus on intellectual questions related to research and exhibitions.

Two book manuscripts based on office programs were completed during 1988. *Contemporary Indian Tradition* will be copublished in December 1988 by the Smithsonian Institution Press and Oxford University Press in India; the "Science, Ethics, and Food" proceedings appeared in September. Summary reports of the May 1987 symposium, "Constitutional Roots, Rights, and Responsibilities," and of the March 1988 symposium have been distributed to more than 1,000 public and school libraries across the country. Scholarly volumes, video documentaries, and a radio series are also in preparation.

Office of Public Affairs

Millions of visitors to Smithsonian museums and millions of others who are unable to visit the national museums learn about the Institution's research, exhibitions, collections, and programs through the media. To help print and broadcast journalists tell the Smithsonian's story, the Office of Public Affairs provides news releases, backgrounders, publications, photographs, videotapes, and logistical support. The office also oversees Institution-wide information and advertising programs.

During the past five years, the Office of Public Affairs has strongly supported the Institution's commitment to reach a more diverse audience, including Afro-Americans, Hispanic Americans, Asian Americans, and Native Americans. In 1988 the theme of the office's activities was "The Smithsonian. It's for everyone—and for you."

The office's Black Outreach Media Program prepared a coordinated media campaign designed to attract Afro-American families to the Smithsonian. Two television public service announcements, one featuring author Alex Haley inviting visitors to the Anacostia Museum's exhibition on the black church in America, were part of this effort. The announcements were widely used in major East Coast cities. Other elements of the campaign included radio advertising during Black History Month (attracting more than 1,000 calls); print advertisements in New York, Atlanta, Philadelphia, and Chicago newspapers; and colorful posters for the interior and exterior of Washington's Metrobuses. In cooperation with the D.C. Committee to Promote Washington, the office prepared full-color ads for *Ebony*, *Essence*, *American Visions*, and *Black Enterprise* magazines, which brought well over 4,000 written requests for information about the Institution's Afro-American programs. The office also began publishing its full-page monthly calendar of events in Washington's Afro-American newspaper. Support for these activities came in part from the James Smithson Society through the Office of the Committee for a Wider Audience and from the Smithsonian Educational Outreach Program.

Activities in the Hispanic Outreach Media Program included the publication of the monthly calendar in Spanish in *El Latino* newspaper, the distribution of calendar reprints to Hispanic organizations, and expanded distribution of the Spanish edition of the Smithsonian News Service in the United States and Latin America. To describe Smithsonian resources for Latinos, the office produced Spanish- and English-language versions of a television public service announcement and a bilingual brochure. An Educational Outreach Program grant enabled the office to hire a Native American intern to help



Alex Haley generously donated his time and talents to the Smithsonian in the production of a public service announcement for television promoting the exhibition at the Anacostia Museum on the history of the black church in America. Here he is shown in one scene of the spot announcement holding a historic hymn book.

design a media program directed to the national Native American community. Three additional public service announcements were prepared: two about the multicultural nature of Smithsonian exhibitions and programs and one targeted to senior citizens.

During 1988 the Office of Public Affairs provided publicity assistance to other Smithsonian bureaus and offices. The office planned and implemented major publicity campaigns for such activities as the Columbus Quincenary Program; the fifth anniversary of the Museum

Office of Telecommunications

Support Center; the National Museum of Natural History's landmark exhibition, "Crossroads of Continents"; Archives of American Art symposia in San Francisco and Chicago; a symposium, "Afro-Americans and the Evolution of a Living Constitution"; and the Festival of American Folklife. In cooperation with several offices, the Office of Public Affairs coordinated a special promotional effort for the exhibition, "Tropical Rainforests: A Disappearing Treasure."

The office's publications, which report on behind-the-scenes activities at the Smithsonian, continue to be recognized for their excellence. *Research Reports*, a three-times-a-year periodical, received an award from the Society for Technical Communication, and the Smithsonian News Service, a monthly feature story service for daily and weekly newspapers, was honored by the National Association of Government Communicators. The *Torch*, a monthly newspaper for Smithsonian staff, received the highest honor from the Society for Technical Communication.

Through nationally broadcast television and radio programs, educational films, and home video, the Office of Telecommunications extends the reach of the Smithsonian. The office collaborates with Smithsonian researchers, historians, and curators to produce quality programs that present the Institution's wide-ranging activities to the American public.

This year the office joined with the Smithsonian Film, Television, and Radio Communications Council to launch the Smithsonian Video Collection, a new series directed at the growing home video market. Production of the programs, which will concentrate on the Institution's own collections and research, is funded by Eastman Kodak Company, which will also be the principal distributor. The programs' subjects, content, and production teams have been selected by the Smithsonian. The first three one-hour programs—"Dinosaurs," "Insects," and "Gems and Minerals"—are scheduled for release in early 1989.

Work moved forward on a large-scale radio project, an expanded version of "Radio Smithsonian," designed to provide a broad picture of the Institution's research and exhibitions, featuring music and cultures from around the world. In cooperation with public radio station WETA-FM in Washington, D.C., the office produced a pilot pro-



A film crew shoots the marsh and oyster bed areas in the Chesapeake Bay for an Office of Telecommunications production that was completed in 1988.

gram that received high praise from public radio programmers nationwide. Efforts are now under way to raise private funds to support the series. The series would replace the current half-hour "Radio Smithsonian," which reaches a potential audience of 3.5 million people each week.

"Here at the Smithsonian" launched its seventh season, airing on 175 subscribing television stations that serve more than half the prime-time viewing audience in the United States. The program is a series of short features that highlight exhibitions, research, and performances throughout the Institution.

As part of its effort to reach wider audiences, the office conducted marketing research to assess the feasibility of a Smithsonian television series for Hispanic audiences. The research identified a need for more cultural and informational programming about the United States for Spanish-language television. As a result, the office is exploring the development of a pilot for a series of short, Spanish-language television features about the Smithsonian. To increase awareness of Smithsonian programs among black Americans, the office helped plan a series of short programs for black commercial radio stations. Joining with the Office of Interdisciplinary Studies, the office assisted in producing a live teleconference on "Afro-Americans and the Evolution of a Living Constitution."

The office completed a number of video and film projects in 1988. For the National Museum of American History's exhibition, "A Material World," the office produced a major interactive video project, which incorporates video animation, puppetry, and on-location photography. Also for NMAH, the office produced an exhibition videotape on the music of Irving Berlin, marking the composer's 100th birthday. "The Reel Jungle," showing the myths and misconceptions that artists and filmmakers have created about tropical rainforests, was produced to accompany "Tropical Rainforests: A Disappearing Treasure," an exhibition organized by the Smithsonian Institution Traveling Exhibition Service. For the Museum Support Center, the office created a new videotape for museum professionals that gives a comprehensive overview of this innovative facility.

Work also progressed on a half-hour video for the Visitor Information and Associates' Reception Center that will play continuously in two theaters in the new Smithsonian Information Center in the Castle. The office is also producing the video programming for another aid to visitors—nine interactive video stations, operated by touchscreen. These video highlights will be available in several languages and captioned for the hearing impaired.

Working in cooperation with Bank Street College of Education, the office is proceeding with a major project for children aged nine through twelve. "Smithsonian Quest—1492" is an interactive videodisc and a videotape series that will focus on the worldwide events of the century surrounding that date.

In February 1988 Paul Johnson was named director of the Office of Telecommunications. Producer of numerous films and video and radio programs, Johnson was previously the office's associate director.

Smithsonian Institution Press

The Smithsonian Institution Press, the publishing arm of the Smithsonian, produces the works of scientists, scholars, researchers, art historians, and other authors in a wide spectrum of disciplines. Manuscripts may be acquired from the Institution's staff as well as from a worldwide array of institutions and individuals in diverse fields of endeavor. Publications include research monographs, technical and scientific series, exhibition catalogues for Smithsonian museums, informational and educational pamphlets, as well as trade books, sound recordings, and archival videodiscs.

University Press Division

Books published this year by the General Publications section continued to receive critical acclaim. *Galápagos: Discovery on Darwin's Islands*, by David W. Steadman and Steven Zousmer, and *Fragonard in the Universe of Painting*, by the leading scholar and art critic Dore Ashton, were among the lead titles. One of the division's most important publications was *Crossroads of Continents: Cultures of Siberia and Alaska*, by William W. Fitzhugh and Aron Crowell, published in conjunction with the major international exhibition, which opened in September. *The Recovery of Meaning: Historical Archaeology in the Eastern United States*, edited by Mark P. Leone and Parker B. Potter, Jr., was also prominent on the trade list in conjunction with the Anthropological Society of Washington. Among the Press's new titles in the sciences were *North American Owls: Biology and Natural History*, by Paul A. Johnsgard; *The Bald Eagle: Haunts and Habits of a Wilderness Monarch*, by Jon M. Gerrard and Gary R. Bortolotti; and *Grass Systematics and Evolution*, by Thomas R. Soderstrom, et al.

The University Press Division also inaugurated "Exploring the American West," a series featuring reprints of rare and out-of-print reports, with two titles: *The Exploring Expedition to the Rocky Mountains*, by John C. Frémont, with a new introduction by Herman J. Viola and Ralph E. Ehrenberg, and *Exploration of the Valley of the Great Salt Lake*, by Howard Stansbury, with a new introduction by Don D. Fowler. New books in aviation history included *From the Ground Up: The Autobiography of an Aeronautical Engineer*, by Fred E. Weick and James R. Hansen; *Pacific Air Race*, by Robert H. Scheppler; and *Test Pilots: The Frontiersmen of Flight*, by Richard P. Hallion.

On the anthropology/archaeology list, *The People of the Bat: Mayan Tales and Dreams from Zinacantan*, ed-

ited by Carol Karasik and collected and translated by Robert M. Laughlin, received excellent reviews in the public press. New titles published in the Smithsonian Series in Ethnographic Inquiry include *Rarámuri Souls: Knowledge and Social Process in Northern Mexico*, by William L. Merrill, and *Raiders & Refugees: Trends in Chamba Political Development*, by Richard Fardon. Three new titles were published in the Smithsonian Series in Archaeological Inquiry: *Prehispanic Settlement Patterns in the Lower Santa Valley, Peru*, by David J. Wilson; *Status and Health in Prehistory: A Case Study of the Moundville Chiefdom*, by Mary Lucas Powell; and *Stylistic Boundaries among Mobile Hunter-Foragers*, by C. Garth Sampson.

In this year of expanding cooperation with other bureaus, a book of special interest published with the Anacostia Museum was *Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities, 1740-1877*, by Edward D. Smith. *Giacometti*, by Valerie J. Fletcher, was published in collaboration with the Hirshhorn Museum and Sculpture Garden.

The Series section of the University Press Division publishes the federally funded *Contributions and Studies*, consisting of ten series of monographs that report the research of Smithsonian staff. All of the editing, design, and typesetting for these publications is accomplished on Smithsonian Press computers.

Among the eighteen publications in these series during 1988 series were: "A Monograph of the Lichen Genus *Parmelia*. . .," by Mason E. Hale, Jr. (*Smithsonian Contributions to Botany*, no. 66); "Hydrographic and Meteorological Studies of a Caribbean Fringing Reef at Punta Galeta, Panama . . .," by John D. Cubit et al. (*Smithsonian Contributions to the Marine Sciences*, no. 32); "The Cretaceous Birds of New Jersey," by Storrs L. Olson and David C. Parris (*Smithsonian Contributions to Paleobiology*, no. 63); "A Survey of Internal Oral Features of Leptodactyloid Larvae (Amphibia: Anura)," by Richard J. Wassersug and W. Ronald Heyer (*Smithsonian Contributions to Zoology*, no. 457); and "Late Holocene Fossil Vertebrates from Burma Quarry, Antigua, Lesser Antilles," by Gregory K. Pregill et al. (*Smithsonian Contributions to Zoology*, no. 463).

Smithsonian Collection of Recordings

The Recordings Division produced and released three new albums under the Smithsonian Collection (SCR) label, each with extensive liner notes in an accompanying

book. The largest of these was the six-record, six-compact-disc, and five-cassette set entitled *Beethoven: Early Years through the "Eroica,"* distributed by direct mail to Smithsonian Associates. The recording contains Beethoven's first three symphonies as well as his Opus 18 quartets and his two cello sonatas, performed on original instruments by, respectively, the Smithsonian Chamber Orchestra, the Smithsonian String Quartet, and James Weaver and Kenneth Slowik. These are the first recordings issued on compact disc by SCR.

Piano Music of Louis Moreau Gottschalk, performed by pianist Lambert Orkis, and *Smetana/Dvorak Piano Trios*, performed by the newly formed Castle Trio, are the inaugural releases in an "Instruments of the Smithsonian" series and include extensive notes about the instruments from the collection. Also released in 1988 were the first two records launching a Smithsonian/deutsche harmonia mundi series: Mozart's *Concertante K.364/Concertone K.190* and Servais's *Souvenirs and Caprices*. The Mozart is performed by the Smithsonian Chamber Orchestra and the Servais by cellist Anner Bylsma. This series will be available to the retail record trade in the United States through Angel Records.

Last year's release *Singers and Soloists of the Swing Bands*, annotated by Mark Tucker, was nominated for two Grammy Awards, for Best Historical Album and Best Album Notes. *Jimmie Rodgers on Record: America's Blue Yodeler*, by Nolan Porterfield, was also nominated for Best Album Notes.

Smithsonian Books

A highlight of this year for Smithsonian Books was the publication of *Exploring the West*, by Herman Viola. This beautifully illustrated story of the exploration and mapping of the West by Smithsonian scientists and others was distributed to Smithsonian Associates by direct mail and to the retail book trade by Harry N. Abrams. It was also a Book-of-the-Month Club dividend selection. Following on the success of *Exploring the West* was the publication in August of *In the Age of Mankind: A Smithsonian Book of Human Evolution*, by Roger Lewin. Smithsonian Institution Press distributed this volume to the retail book trade, as well as to Smithsonian Associates by direct mail.

Book Development

The newly formed Book Development Division produced full-color postcard books featuring works in the collections of Smithsonian museums. They are intended primarily for sale in the Museum Shops. The first postcard books feature the collections of the National Museum of African Art, the National Museum of American Art, the National Museum of Natural History, and the National Air and Space Museum and the National Portrait Gallery. Several more are planned for release by the spring 1989 tourist season.

For the first time, three museums have their own guidebooks, each coordinated and published by the Press. Guides for NMAH, NMNH, and NASM are enormously popular with visitors, especially through the busy summer months.

Optical Publishing

The Optical Publishing Division, established this year under the direction of Glen Hoptman, is exploring projects that use interactive educational technologies. The division is working with Smithsonian Books staff, for example, on *Treasures of the Smithsonian* and, with the Smithsonian Collection of Recordings and the Office of Folklife Programs, has begun a cooperative venture involving the recently acquired Folkways Collection.

In a related development, planning has begun for the Press to serve as the electronic publisher of Smithsonian research data bases, such as the Index of American Sculpture, the Hymenoptera Catalog, and bibliographies in several fields. The result could be the distribution of research information by floppy disks, by CD-ROM (which combines visual and textual material on laser disks), or by telephone dial-up. The target audience will be libraries, research institutions, and individual scholars.

Smithsonian Internship Council

The Smithsonian Internship Council, formed in 1981, sets standards for internship programs and coordinates these programs throughout the Institution. Its members, who meet monthly, represent each Smithsonian museum and office. During 1988 more than 500 individuals participated in the Institution's internship programs, which ranged from working with exhibit designers on an exhibition at the National Museum of Natural History to organizing special events with the Resident Associate Program.

The council has produced three publications for interns: *Internships and Fellowships* describes the majority of internship and fellowship programs at the Smithsonian. The *Handbook for Smithsonian Interns* provides information about Smithsonian procedures, facilities, services, and activities available to interns. *Housing Information for Interns and Fellows* is a guide to short-term housing in the Washington metropolitan area.

The Internship Council cochairs for 1988 were Bruce Craig of the Office of Museum Programs and Mary Dyer of the National Museum of American History. The staff assistant to the council registers interns, provides identification credentials and orientation, and produces reports about interns and internship programs throughout the Institution. The staff assistant also provides services for interns at the Woodrow Wilson International Center for Scholars.

This year the council directed most of its energies toward two goals: the establishment of a central stipend fund and the standardization of application procedures. To gather background information for both efforts, the council conducted a multiyear survey of internship programs that yielded data on Smithsonian staff who work with interns, demographic information on program participants, and types of supplementary activities available to interns. The survey revealed the extent of services that various programs offer and indicated areas needing greater effort.

The council has long advocated a central stipend fund to attract members of minority and socioeconomic groups who traditionally have not considered museum work as a career. Using the survey data, the council developed a proposal for such a fund. The proposal met with great interest throughout the Institution, as the council cochairs met with bureau and office directors and other staff to seek feedback and discuss methods of administering the fund. The Office of Museum Programs agreed to include the stipend fund in its budget request; approval of the request is pending.

At the end of the year the council began work on a

standardized application form that would be used for internships carrying stipends. Looking ahead, council members will develop a standardized application review process and increase their efforts to help staff identify internship opportunities.

Smithsonian, the official magazine of the Institution, has the largest circulation of any museum-affiliated magazine in the world. To many of its four million primary readers and its pass-along audience of an additional three million, it is their only experience of the Institution.

In the last year, *Smithsonian* magazine covered a wide range of institutional activities both in feature stories and in regular monthly departments. A balanced and thoughtful treatment of India's current problems with helping tigers and humans to coexist dealt with an issue of direct concern to the Institution. A feature on the artist Andrew Jackson Grayson coincided with the exhibition of his work at the National Museum of Natural History, and an article on Alberto Giacometti coincided with an exhibition at the Hirshhorn Museum and Sculpture Garden. Zoo director Michael Robinson wrote about his work with spiders, and Smithsonian researcher Eric Dinerstein did an article on the Institution's working elephants in Nepal. *Smithsonian* published a major excerpt from the new space history book by former Under Secretary Michael Collins. A cover story on the National Museum of Natural History's "Crossroads of Continents" exhibition appeared in the October issue. The cutting of the world's second largest diamond, now on display at the National Museum of Natural History, was a three-year process described in detail in a *Smithsonian* article.

Reflecting continued interest in the issues of tropical forest destruction, the magazine treated the World Wildlife Fund's minimum critical habitat project in Brazil, as well as Janis Carter's chimpanzee rehabilitation efforts in Gambia. Other environmental stories included those on plastic pollution in our seas, current research into the ozone hole over Antarctica, and the attempts by the U.S. Fish and Wildlife Service to reintroduce the red wolf in the wild.

In the arts, the magazine did major treatments, complete with gatefold illustrations, on Hieronymous Bosch and Georgia O'Keeffe, as well as substantial stories on Georges Braque, Paul Gauguin, and the Art Institute of Chicago. In the performing arts, the cover story on the Dance Theater of Harlem was notable.

History, of course, was part of the main menu of every issue, with stories on such subjects as Henry Christophe of Haiti, the East India Company and the Great Blizzard of '88. Especially memorable was a feature on what happened to one Newfoundland regiment during the Battle of the Somme in World War I. The magazine continued its coverage of the Constitution with a stimulating article speculating on what would have happened to the United States if that document had not been ratified.

The sciences were represented with stories on Kenya's center of research on destructive insects, the Marine Biological Laboratory at Woods Hole, current research into lightning, and the cause of headaches. On the business side, the magazine enjoyed a successful year, on a par with 1987. The first half was especially strong in advertising, while the last half was weaker than the previous year. Circulation was stable.

During 1988 a promising new plan of integrating information about membership services and products was conceived and funded by the Institution. This plan, known as the Smithsonian data base or master file, will collate, organize, and standardize names and addresses of Smithsonian Associates as they take advantage of services provided by various divisions of the Smithsonian.

Smithsonian Project Discovery

Smithsonian Project Discovery (formerly the University of the Air) was established in 1986 by the Smithsonian Institution and television producer Adrian Malone to create a new, integrated, multimedia curriculum on the history of ideas of the twentieth century. The goal of Smithsonian Project Discovery is to have a positive influence on the quality of U.S. education by integrating high-caliber broadcast television dramas and documentaries, books, and interactive, multimedia computer programs and videodiscs.

The Project's television programs will dramatize the lives of twentieth-century intellectual and cultural leaders and link those lives by documentary series hosted by the great teachers of our time. Together, the dramas and documentaries will offer viewers the best attributes of each: people, dramatic and vital, and ideas brought to life by artifacts, place, and time. Smithsonian Project Discovery will use books, learning guides, and the latest technology—interactive videodiscs—to encourage each student to take his or her own path. Students will be able to experience the excitement of discovery, the drama of human stories, the context of time and place, and that old-fashioned aim of classical education—synthesis.

By 1991 Smithsonian Project Discovery intends to have completed four dramas (on Albert Einstein, Werner Heisenberg, Nadia Boulanger, and John Maynard Keynes), one eight-part documentary series, and accompanying computer programs, videodiscs, and books.

Smithsonian Project Discovery has established cooperative relationships with Apple Computer, to complete the prototype interactive multimedia disc, and with The Discovery Channel, to produce and present the television component on cable, followed by broadcasts on American public television and abroad. The Project is also working with other offices at the Smithsonian, including the Resident Associate Program and Smithsonian Institution Press.

"Smithsonian World"

As the year ended, "Smithsonian World," the prime-time Emmy Award-winning television series coproduced for the Public Broadcasting Service by the Smithsonian Institution and WETA-TV in Washington, D.C., entered its fourth season with a growing audience, substantial underwriting, and strong critical acclaim. More than fourteen million viewers watch each program of "Smithsonian World," including repeat telecasts, with audiences for the repeats sometimes outnumbering those who tuned in for the original programs.

"Smithsonian World's" fourth season is funded in part by the series' original supporter, the James S. McDonnell Foundation. The series also welcomed its first corporate sponsor, the Southwestern Bell Corporation, as the sole corporate underwriter for the season's five new programs, together with five encore programs from earlier seasons.

The following new programs were produced during 1988 for the coming season:

◆ "The Living Smithsonian," which celebrates the people committed to creating a center for exploring the past in order to understand the future (air date: October 24, 1988)

◆ "American Dream at Groton," an examination of one of the diverse ways of learning in a multicultural society (air date: November 21, 1988)

◆ "The Way We Wear," a look at the impact of fashion on society and the impact of society on fashion, leaning heavily on the backdrop of history (air date: December 26, 1988)

◆ "Web of Life," which is based on the National Museum of American History's "Search for Life" exhibition on genetics and examines the quest to understand and control the genetic basis of life on earth (air date: January 25, 1989)

◆ "The Vever Affair," a look at the Smithsonian's magnificent Henri Vever collection of Persian and Indian paintings from the fourteenth to the eighteenth centuries and at the intriguing tale behind its acquisition. Secretary Adams calls the Vever Collection "perhaps the most important acquisition in the history of the Smithsonian Institution" (air date: March 1, 1989).

Years One and Two of "Smithsonian World" continue to be broadcast across the nation and throughout the world in syndicated form, generally as two-hour specials on commercial television stations.

Visitor Information and Associates' Reception Center

The Visitor Information and Associates' Reception Center (VIARC) operates Institution-wide information and assistance programs for the public, Associate members, staff, volunteers, and interns. VIARC volunteers and staff provide a wide range of services seven days a week, including staffing museum information desks, answering public inquiry telephone lines, providing daily information on the Dial-a-Museum and Dial-a-Phenomenon recordings, and responding to written inquiries from the public. VIARC also operates mobile outdoor information units during the summer months and conducts behind-the-scenes tours of the Smithsonian Castle building.

Other support services include recruitment and placement of volunteers behind the scenes, registration and orientation of interns, and operation of an outreach program to promote membership and previsit education. The center also administers the Institution's exterior graphic information system.

Renovation, construction, and program activities for the new Smithsonian Information Center in the Castle went into full swing in 1988. The project is on schedule for the anticipated July 1989 opening date.

The Commission of Fine Arts approved the design concept and materials for the Institution's Exterior Graphic Information System, and the National Capital Planning Commission has given its endorsement. Work on one aspect of this project—updating and refurbishing the general information directories on the Mall—was initiated this year in cooperation with the National Park Service.

Since the opening of the National Museum of African Art, the Arthur M. Sackler Gallery, and the S. Dillon Ripley Center, museum information desk services have expanded substantially. To staff the sixty-two daily assignments at sixteen desks in eleven buildings, the volunteer information specialist ranks swelled to 534. The overall minority participation in this program rose to 13.8 percent.

The Telephone Information Service handled more than 430,000 calls during the year. Annual events such as the Resident Associates Kite Festival, the Washington Craft Show, and the open house at the Paul E. Garber Preservation, Restoration, and Storage Facility all resulted in thousand-call days. The popular Dial-a-Phenomenon recording on short-lived celestial events attracted 47,000 interested callers. Special recorded information was also provided to highlight Smithsonian activities during Black History Month, Women's History Week, Asian-Pacific American Heritage Week, and Hispanic American Heritage Week.

VIARC's Public Inquiry Mail Service received and



SI Shutterbugs, a pilot program to assist visitors by taking group photos using the visitors' cameras, served as another out-of-doors visitor assistance program sponsored by the Visitor Information and Associates' Reception Center.

processed some 55,000 pieces of general information and research mail during 1988. The service also packaged and mailed more than 4,700 information packets to individuals responding to the Institution's efforts to expand its minority constituency.

The pylons used outdoors during summer months to orient and inform visitors of extended summer museum hours were redesigned and enthusiastically received by the public. Mobile information carts made more than 120,000 information leaflets available to visitors on the Mall. Through SI Shutterbugs, a pilot program, volunteers helped visitors record their trip to the Smithsonian by taking group photos using the visitors' cameras.

Year-round, some 1,088 volunteers were active behind the scenes at the Smithsonian. Four hundred thirty-seven volunteers provided short-term assistance on special projects. The translation services group expanded to sixty participants who have capabilities in thirty-eight languages. In all, volunteers translated 167 documents for Smithsonian departments and divisions.

VIARC's Information Resources Division oversaw the development, production, and review of a range of printed materials, including internal reference sources

and, jointly with the Office of Public Affairs, visitor-oriented publications prepared by individual museums and program offices. More than seventy printed pieces were completed, including the principal public information brochure for the Quadrangle complex.

Results of the center's annual Institution-wide volunteer survey indicated that 5,763 volunteers contributed 485,084 hours of service during 1988.

EXTERNAL AFFAIRS

Thomas Lovejoy, Assistant Secretary for External Affairs

James Smithsonian Society

The James Smithsonian Society was founded in 1977 as the highest level of the Contributing Membership of the Smithsonian National Associate Program. Since then, the society has granted more than \$2.3 million in support of Smithsonian projects and acquisitions.

The Smithsonian Society's annual meeting was held on September 23–24 in conjunction with the fall meeting of the National Board of the Smithsonian Associates. At a formal dinner at the National Museum of American History on Friday, September 23, Secretary Adams welcomed the group, and Charles D. Dickey, Jr., chairman of the National Board, announced the projects receiving 1988 Smithsonian Society grants.

In 1988, through the contributions of Smithsonian Society Annual Members, the society made awards totaling \$344,700 to support the following projects.

National Museum of American Art: To mount the exhibition, "The Art of Paulanship (1885–1966)" and, in conjunction with the National Portrait Gallery, acquisition of a Wild stereomicroscope.

Hirshhorn Museum and Sculpture Garden: Purchase of a pair of 35-millimeter projectors.

National Museum of American History: Acquisition of six Audubon engravings, publication of three catalogues of the DeVincent Collection of illustrated sheet music, and publication of *American Clocks*.

Cooper-Hewitt Museum: Toward the Andrew W. Mellon Foundation challenge grant to establish a permanent endowment for research and publications.

Office of Horticulture: Purchase of a freeze-drying machine for drying flowers.

National Air and Space Museum: Construction of two scale models of World War I strategic bombers and completion of close-caption programming of audiovisual presentations.

Office of Interdisciplinary Studies: To commemorate Martin Luther King, Jr., Day on January 16, 1989.

National Museum of Natural History: For the Columbus Quincentenary exhibition, "Americans before Columbus: Prehistoric South Americans."

National Zoological Park: Development of educational graphics illustrating the contribution of Algonquin Indian and Afro-American foods and medicinal herbs to contemporary medicine and diet.

Smithsonian Environmental Research Center: Study of the demise of the American chestnut in an Appalachian forest.

Smithsonian Press: Recording of Bach's *St. John Passion*.

Smithsonian Institution Libraries: Purchase of *Versuche und Muster ohne alle Lumpen oder doch mit einem geringen Zusatze derselben Papier zu machen*, by Jakob Christian Schaeffer.

Smithsonian Astrophysical Observatory: Updating and conversion of the film, *Mirror on the Universe: The MMT Story*, and funds to conduct a two-week summer institute for high school astronomy teachers.

National Board of the Smithsonian Associates

The National Board of the Smithsonian Associates was established to bring the Institution into closer association with corporate, professional, community, and cultural leaders from throughout the country. The Institution looks to guidance from the National Board in stimulating appropriate forms of cooperation among these sectors and for assistance with regional Smithsonian activities, educational services, and private support for these and other programs.

At their spring meeting in Philadelphia, members heard from Secretary Adams about significant developments at the Institution. Afterward, the board took advantage of the opportunity provided by chairman Charles D. Dickey, Jr., to visit museums and participate in other cultural activities in the Philadelphia area. The eleven new members elected to the board were W. J. "Jack" Bowen, Houston, Texas; Dan W. Burns, Los Angeles, California; James H. Evans, New York City; Peter E. Haas, San Francisco, California; Frank W. Hoch, New York City; Robert Van Cleef Lindsay, New York City; Antony Merck, South Carolina; Anne Murray Morgan, Worcester, Massachusetts; Thomas J. Pritzker, Chicago, Illinois; Lloyd G. Schermer, Davenport, Iowa; and A. Alfred Taubman, Bloomfield Hills, Michigan.

The board's autumn meeting was held, as usual, in Washington, D.C. At the Friday, September 23, session, members and spouses heard Joseph Bonsignore, publisher of *Smithsonian* magazine, and Adrian Malone, chairman of the Smithsonian Communications Council, describe their respective areas of responsibility. The annual National Board-Smithsonian Society dinner was held at the National Museum of American History that evening. On Saturday, September 24, Secretary Adams discussed current issues at the Smithsonian. Mrs. Gay Wray was elected unanimously to succeed Mr. Dickey as chairman of the National Board.

Office of Membership and Development

The Office of Membership and Development (OMD) carries out fund-raising activities in support of Institution-wide priorities and assists individual bureaus in their development projects. A major focus in 1988 was the reorganization of the office in response to the continuing decentralization of development functions at the Smithsonian. As development offices were established at the National Air and Space Museum, the National Museum of Natural History, and the Arthur M. Sackler Gallery and Freer Gallery of Art, some members of the central office staff took on additional duties oriented toward the broader needs of the Institution. This larger, more dispersed network of development activity requires greater planning and coordination. To this end, the OMD offered a series of development workshops to staff in other Smithsonian offices and bureaus.

In October 1987 James McK. Symington retired as director of membership and development. During his eleven years of Smithsonian service, he led the office as it grew, in response to expanding funding needs, from seven staff members to twenty-one. Deputy director E. Jeffrey Stann acted as director during most of the year. In September, Thomas McCance, Jr., joined the Institution as deputy assistant secretary for external affairs/director of membership and development after eight years as managing director of the Yale Alumni Fund at Yale University.

The OMD staff began refocusing its energies on a number of Institution-wide fund-raising activities, with an emphasis on individual donors and planned giving. Two development officers began building a program that is expected to produce considerable results for the Institution and for individual bureaus in the future.

The National Museum of African Art's acquisitions funds received a major gift from the Annie L. Aitken Trust early in the year; the Brown Foundation underwrote a major acquisition by the Archives of American Art; and the Enid and Kemper Crosby Foundation continued its support of acquisitions at the National Museum of American Art.

Several exhibitions at the National Portrait Gallery were made possible through corporate and foundation gifts. The law firm of Morgan, Lewis, and Bockius will provide partial support for "Distinguished Jurists" and has taken the lead in identifying cosponsors, including the firm of Vinson and Elkins. An exhibition of the work of Winold Reiss will be made possible through the generosity of the Burlington Northern Foundation and the Anschutz Foundation. "Then and Now," the gallery's first overseas exhibition, was made possible by Bay Apparel Limited (Hong Kong), American Express, and with in-

kind support from Emery Worldwide and All Nippon Airways. Thanks to the Nihon Zooki Seiyaku K.K. of Osaka, the exhibition catalogue was printed in Japanese.

The Cooper-Hewitt Museum announced an agreement with the Comité Colbert of Paris to sponsor a major historical look at French decorative arts. The museum was also able to offer extended hours through the support of Mobil Oil Corporation. Another major gift was made by the Jacob and Charlotte Lehrman Foundation to the Hirshhorn Museum and Sculpture Garden, which has named the reflecting pool in honor of Mr. and Mrs. Lehrman.

In the public service area, "The Buried Mirror," a television series planned as the cornerstone of the Institution's observance of the Columbus Quincentenary, moved forward with promises of underwriting from a consortium of Spanish and Mexican interests. Brother International, in honor of its thirty-fifth anniversary in this country, has agreed to sponsor a curriculum kit for high schools based on Smithsonian collections; the kit is expected to be the first of a series. The Gannett Foundation continued its support of the symposia on the bicentennial of the Constitution organized by the Office of Interdisciplinary Studies. The Clark-Winchcole Foundation supported a second year of curriculum development for the Smithsonian Child Care Center.

The National Museum of American History and the National Air and Space Museum have continued work to fund their respective exhibitions about computers and the information age. New supporters include AT&T, NCR, Hitachi, and Computervision corporations. At the National Air and Space Museum, the Alfred M. Sloan Foundation completed funding of a videohistory on science in national life. The National Museum of American History received a commitment from the National Cosmetology Association to sponsor an exhibition about clothing and sexual stereotypes.

Another aspect of American culture is being treated in an exhibition about baseball, "Diamonds Are Forever," thanks to the assistance of American Express; this project is being organized by the Smithsonian Institution Traveling Exhibition Service. The Smithsonian Museum Shops were pleased to accept a gift from the Island Pacific Systems Corporation.

The Smithsonian was grateful for the interest of the Morris and Gwendolyn Cafritz Foundation in supporting an extensive examination of a possible experimental gallery at the Smithsonian. The Rockefeller Foundation has also provided funding for investigating experimental exhibitions about minority and non-Western cultures. The

J. N. Pew, Jr., Charitable Trust made possible the continuation of the Wildlife Conservation and Management Training Program at the National Zoological Park.

Among the bequests to the Institution, Joseph Hirshhorn's long-term generosity continued in the form of a major gift from his estate and another from the Holenia Trust Fund to the museum bearing his name. The Smithsonian was also grateful to receive a major bequest from Charles H. Ettl.

The Smithsonian was fortunate in having two international representatives to help in global activities this year. In Japan, Mrs. Hanako Matano provided coordination and support for the National Portrait Gallery's "Then and Now" exhibition. In Paris, Sir Valentine Abdy's long-term efforts with the Comité Colbert came to fruition for the Cooper-Hewitt. A third representative, Luis Gomez-Acebo, the Duke of Badajoz, has agreed to assist the Institution's efforts in Spain, thus extending the Institution's reach to that important country as planning continues for the Quincentenary.

Office of Special Events



Mrs. S. Dillon Ripley acknowledges the dedication of the new Mary Livingston Ripley Garden, opened May 25, 1988, in honor of her more than twenty years of service to the Smithsonian.

Special events are essential for developing and maintaining important constituencies. As the principal office responsible for organizing Institution-wide events and programs, the Office of Special Events coordinated several hundred activities in 1988. These included the dedication of the Mary Livingston Ripley Garden, the celebration of Lady Bird Johnson's seventy-fifth birthday, the fifth anniversary celebration of the Museum Support Center, the Institution's first annual garden party for members of Congress in the Enid A. Haupt Garden, and several receptions in the International Gallery exhibition, "Tropical Rainforests: A Disappearing Treasure," to inform special groups of the plight of the world's rainforests. In addition to such events, the office handled more than 1,000 requests from outside organizations seeking to use Smithsonian facilities.

Smithsonian National Associate Program

Serving more than two million members, the Smithsonian National Associate Program offers innovative educational opportunities throughout the nation, expanding the boundaries of the Institution to encompass all fifty states. The program's far-flung membership is kept abreast of the Institution's activities through *Smithsonian* magazine. In cooperation with other Smithsonian bureaus, the program has organized a diverse range of activities for members. As a result, the program has, since its beginning in 1970, fostered a strong national constituency for the Smithsonian's work.

A sampling of the activities and accomplishments of the program's four units follows.

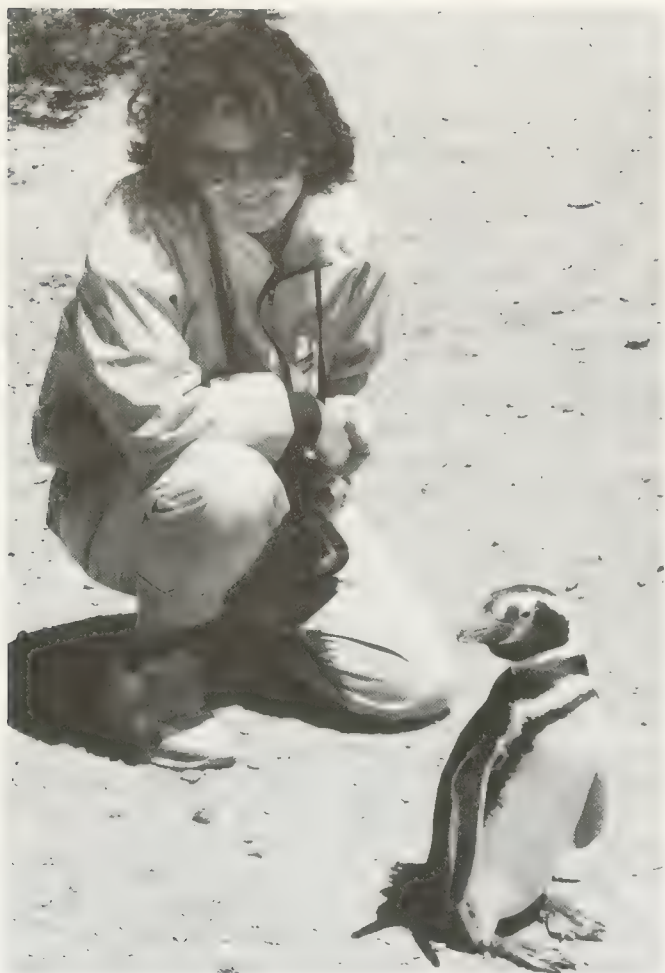
Contributing Membership Program

The Contributing Membership of the National Associate Program, established in 1976, provides unrestricted and restricted funds to support Smithsonian research, education, and outreach programs. This financial support is a combination of annual membership dues and corporate matching funds, plus the Contributing Members' generous response to special fund-raising appeals for specific Smithsonian projects or the Institution's ongoing work.

Members may participate at six levels: Supporting (\$60; available only to members who live outside the Washington, D.C., metropolitan area); Donor (\$125); Sponsoring (\$300); Sustaining (\$600); Patron (\$1,200); and the James Smithsonian Society (\$2,000).

The Contributing Membership Program continues to grow steadily, numbering 47,400 households in 1988, or 6 percent more than in 1987. Ninety percent of these members reside outside the Washington, D.C., metropolitan area. Total membership income also continues to increase: this year's \$2.85 million in net unrestricted gain to the Institution topped the 1987 unrestricted net by 13 percent.

The Institution expresses its appreciation to Contributing Members through a variety of benefits and special programs. In 1988, members were invited to attend eight exhibition previews and receptions at a variety of Smithsonian museums. Among the other special events held for Contributing Members were an evening hosted by Thomas E. Lovejoy, Assistant Secretary for External Affairs, at the exhibition, "Tropical Rainforests: A Disappearing Treasure," and a private tour for James Smithsonian Society members of the Paul E. Garber Preservation, Restoration, and Storage Facility. Contributing Members also received several complimentary publications in 1988,



Participant in Associate Travel Program on South American cruise stops at Punto Tambo, Argentina, to observe megallanic penguins. (Photograph by John Tveten)

including *A New View from the Castle*, *People of the Tropical Rainforest*, and the *Smithsonian Engagement Calendar*.

Contributing Members in the Washington, D.C., metropolitan area are enrolled automatically in the Resident Associate Program (RAP). Members outside Washington receive *Smithsonian Research Reports*, published three times a year by the Office of Public Affairs to highlight special research and educational projects throughout the Institution.

Twice during 1988, members participated in "Smithsonian Treasures," an exclusive, behind-the-scenes visit

to the Institution. The highly popular five-day tour is planned by the Associates Travel Program, which also coordinated the first international study tour exclusively for Contributing Members, "Voyage to Hudson Bay, Greenland, and Iceland." Accompanying members on the voyage were Smithsonian scholars, including Dr. Robert Hoffmann, Assistant Secretary for Research, who lectured on the polar Ice Age, the cycle of Arctic seasons, and current Smithsonian research priorities. Other benefits are offered in conjunction with the Lecture and Seminar Program, which organizes educational activities in communities nationwide and abroad. Contributing Members are offered priority registration, complimentary tickets to one lecture, and often an invitation to an informal reception following the lecture.

Research Expedition Program

The Smithsonian Research Expedition Program was initiated to enthusiastic response in 1988 as another important benefit of National Associate membership. Through this program, Associate members volunteer their financial support and their labor to participate in two-week field experiences led by Smithsonian scientists or curators.

The purpose of the program is twofold: to offer Associates the opportunity to become personally involved with the Institution by working closely with Smithsonian professionals, and to provide Smithsonian scientists with an additional source of field assistance and funding for their research projects.

This year sixty-four Associates participated in five research expeditions in Costa Rica, Colorado, Idaho, and Washington, D.C. Topics included volcanology, botany, archaeology, oral history, and archival processing. The program is expected to expand in coming years.

Lecture and Seminar Program

The Lecture and Seminar Program, now in its thirteenth year, highlights the research and collections of the Smithsonian for National Associate members and the general public nationwide. Under the program's auspices, Smithsonian curators, scientists, and research associates present lectures, seminars, and hands-on workshops in approximately twenty U.S. cities each year.

During the past year, the Lecture and Seminar Program visited for the first time Billings and Helena, Montana; Tacoma, Washington; Baton Rouge, Louisiana; Wichita,

Kansas; Huntsville, Alabama; New Paltz, New York; and Hattiesburg, Mississippi. Following successful events in previous years, the program returned to Missoula and Bozeman, Montana; Seattle, Washington; Minneapolis and St. Paul, Minnesota; Honolulu, Hawaii; Tampa, St. Petersburg, and Sarasota, Florida; Phoenix, Arizona; and Santa Barbara and San Diego, California. The mayors of Hattiesburg, Mississippi, and Boone, North Carolina, issued proclamations honoring the Smithsonian visits to their communities. The Smithsonian also received the key to the City of Hattiesburg.

The success of activities organized by the Lecture and Seminar Program depends in part on collaboration with local and national organizations. During 1988, the program worked in tandem with 120 local organizations throughout the country, including museums, universities, zoological parks, and botanical gardens. National organizations that cosponsored Smithsonian events were United Airlines, the National Trust for Historic Preservation, Sigma Xi—The Scientific Research Society, EAA Aviation Foundation, and the World Wildlife Fund—U.S.

Thirty-two new programs were developed this year. Among these were “Computers in Aerospace,” taught by Paul Ceruzzi of the National Air and Space Museum; “African Art at the Smithsonian,” taught by Roslyn Walker of the National Museum of African Art; “Splendors of Asian Art,” taught by Patrick Sears of the Arthur M. Sackler Gallery; and “Meteorites and the Origin of the Solar System,” taught by Glenn MacPherson of the National Museum of Natural History.

The Lecture and Seminar Program also offers week-long seminars in Washington, D.C., which enable Associates from across the country to study with Smithsonian curators during lectures and special behind-the-scenes tours. Nine Washington seminars were held during the past year, including “African Art at the Smithsonian,” “Splendors of Asian Art,” and “Adventures in Archaeology: Caesarea on the Sea.”

The Lecture and Seminar Program enjoyed continued success with its week-long residential seminars, held at Appalachian State University in Boone, North Carolina; in Vail, Colorado; at the University of Southern Mississippi in Hattiesburg; and at Mohonk Mountain House in New Paltz, New York. Among these seminars were “The Art and Craft of Creative Writing,” “Salute to American Popular Song and Jazz,” “Exploring the Heavens and the Earth: Past and Present,” and “Creative Photography.”

The Lecture and Seminar Program presented two international series during 1988: a six-day series in Melbourne and Sydney, Australia, in celebration of Australia’s Bicen-



Contributing Members of the Smithsonian National Associate Program survey the archaeological discoveries of Caesarea during the special viewing of “King Herod’s Dream: Caesarea on the Sea,” at the National Museum of Natural History on March 23, 1988.

ennial and a six-day lecture program in five cities in Denmark. Continuing the program’s strong ties to Japan, ten Japanese high school and junior high school students visited the Smithsonian in the summer of 1988 under the auspices of MYC Cultural Exchange Institute. During their visit, the Japanese Minister of Education officially praised the bond that has been established and encouraged continued development through these Summer Educational Enrichment Programs.

Associates Travel Program

The Associates Travel Program organizes educational tours that mirror the many and varied interests of the Institution. In 1988, more than 7,000 National Associates participated in 142 foreign and domestic tours. Since the program’s inception in 1975, more than 80,000 Associates have embarked on these journeys. The educational value of each outing is enhanced by carefully chosen study leaders. One or more Smithsonian staff members also accompany each trip.

Foreign Study Tours span the globe, offering a wide variety of destinations and many unique learning experiences. For example, a tour focusing on the wildlife and national parks of Argentina was one of the new program offerings in 1988. Also introduced was a tour of Indonesia, where Associates met with craftspeople, performers,

and political leaders, and a tour of Nepal, Ladakh, and Bhutan, with emphasis on history, culture, traditional crafts, and religious festivals.

Associates also retraced historic sea routes and learned about early explorations as they sailed on the four-masted barque *Sea Cloud* in the southern Caribbean. On their journey, Associates traveled from Costa Rica to the San Blas Islands, Cartagena, and on to Curaçao. They enjoyed the lectures of historian and anthropologist Anthony Maingot and author James A. Michener, who is writing a book on southern Caribbean history. On another study voyage, participants traveled on the cruise ship *Argonaut* around Italy and Sicily, from Venice to Genoa. The tour featured lectures on the region's cultural history, art, and architecture.

On other study cruises, Associates explored history and modern-day political and social concerns while traveling on the Volga River. During a cruise along the coast of Europe from England to Portugal, they learned about art and literature. A trip from Rio de Janeiro, Brazil, around Cape Horn, and to Santiago, Chile, examined the history and current politics of Latin America.

Among the thirteen tours offered in China were the popular "China by Train," "Decorative Arts and Antiques in China," and "Hiking China's Sacred Peaks." Associates also explored Tibet on a tour that included an overland trip to Nepal. Other travelers flew to Moscow, traveled to Tashkent and Samarkand in Central Asia, and then crossed the recently opened Soviet border region from Kazakhstan into China's Xinjiang Autonomous Region. They continued tracing the Silk Road to Kashgar, Dunhuang, and Xian, before reaching Beijing.

Countryside programs in 1988 provided the opportunity to live in small towns in The Netherlands, Hungary, England, Wales, Italy, Switzerland, Austria, or France. Residential seminars included programs on history and art in Florence; on decorative arts, literature, and culture at Trinity College in Dublin; and on ancient history in Cairo. At the tenth annual Oxford/Smithsonian Seminar, Associates could choose from a variety of specially designed courses in the arts and sciences.

The fifty Domestic Study Tours offered in 1988 enabled Associates to experience the natural wonders and regional heritage of America. Three domestic cruises were new; the fourth—on the popular *Delta Queen*—was offered for the fifth time in four years. Gardens and historic homes were featured on a cruise from New Orleans to Campobello, Maine. Marc Pachter, chief historian at the National Portrait Gallery, accompanied Associates on a summer cruise in New England. His lectures on the

history of America's resorts developed interest in stops at Provincetown, Nantucket, Woods Hole, and Newport. Associates learned about the importance of the Sacramento River from Gold Rush days to the present on a cruise through the waterways of the California Delta.

The "sojourn" programs offered participants the opportunity to spend a week in one city to explore all aspects of the area with guest lecturers and on field trips. In addition to programs in San Francisco and Tucson, a new program to Santa Fe, featuring Pueblo Indian culture, was designed as a sequel to another study tour of Spanish art and culture in the Southwest.

Associates also had a wide variety of outdoor destinations from which to choose in 1988. Popular hiking programs were planned to Hawaii, Alaska, and New Hampshire. Associates camped in Idaho on a Salmon River rafting trip and floated through the Grand Canyon on a Colorado River adventure. Study leaders lectured on the geology and natural history of these wilderness areas. Coral reefs, tropical fish, and other marine life were the focus of a week-long study tour in the Florida Keys at Seacamp on Big Pine Key. These active outdoor programs help to increase understanding and appreciation for conservation of our natural resources.

Special weekend programs at the Institution—including the sixteenth annual "Christmas at the Smithsonian Weekend"—were planned not only for National Associates, but also for Contributing Members and National Air and Space Associates. In addition, Associates participated in the "Washington Anytime Weekend," organized in cooperation with the Visitor Information and Associates' Reception Center. The program includes a behind-the-scenes tour of the Castle and offers guidance and information to visiting Associates.

Smithsonian Resident Associate Program

As an important link between the Smithsonian Institution and the metropolitan Washington community, the Smithsonian Resident Associate Program (RAP) engages area residents in the life of the Smithsonian. During 1988—its first full year of presenting programs in the S. Dillon Ripley Center—RAP offered nearly 2,000 innovative, high-quality, and timely activities for more than 296,700 adults and young people. RAP programs and activities enhance and complement the Institution's collections, exhibitions, and research while upholding the Smithsonian's role as the national museum complex. A privately supported continuing education, membership, and public outreach arm of the Smithsonian, RAP is a model for museum and university programs around the world.

The year 1988 was a time of growth for the program. With the help of a direct-mail marketing campaign and successful programming, more than 16,000 new memberships were achieved, a record number for RAP. Registration for adult courses grew, too, showing an increase of more than 20 percent over last year. The total RAP membership (including Contributing Members) exceeded 64,800 households, up from 60,000 in 1987. In 1988 the preliminary work was completed and the contract awarded for the long-anticipated integrated registration and membership software, which will be in operation in fiscal year 1989.



Attending the premiere gala of *The Last Emperor*, with reception at the Arthur M. Sackler Gallery and screening at the National Air and Space Museum's Langley Theater, were Xu Jiaxian, cultural counsellor, Embassy of the People's Republic of China, Mrs. Han, His Excellency Han Zu, ambassador of the People's Republic of China, director Bernardo Bertolucci, and film stars Joan Chen and John Lone.

In an effort to reach new constituencies, the Resident Associate Program, with the support of the Institution, established a Development Office in March. The office will spearhead expanded outreach efforts in an effort to build new audiences and attract new members from Washington's minority communities.

RAP received an award for creative and innovative programming from the National University Continuing Education Association for the course, "The Best of *The New Yorker*," which featured some of the magazine's best-known writers and artists. RAP was also honored by the National Association of Government Communicators with a Blue Pencil award for its informational brochure.

The year was marked by the successful sale of the RAP-commissioned, limited-edition silkscreen, *In Celebration*, by Washington artist Sam Gilliam. The print celebrated the September opening of the Smithsonian's new museum complex and generated support for Discover Graphics, RAP's free printmaking project for area public high school students and their teachers. Last summer, RAP commissioned Washington artist Willem de Looper to create a limited-edition serigraph—his first print—*Tunis on My Mind*. Proceeds from the sale of the print will also benefit Discover Graphics.

Volunteers

More than 400 volunteers gave approximately 25,000 hours of invaluable assistance to the Resident Associate Program by monitoring activities and performing vital office tasks. They were recognized at a spring luncheon for office volunteers and at an awards reception held in the Arts and Industries Building Rotunda in September.

Cooperation within the Smithsonian

During 1988, RAP continued to draw on the rich resources of Smithsonian museums to create programs and activities that span the arts, history, and science. A sampling of this collaboration includes the four-part chamber music series cosponsored with the National Museum of American History; the 20th-Century Consort music series cosponsored with the Hirshhorn Museum and Sculpture Garden; and a concert and lecture offered to complement the Hirshhorn exhibition "Russian and Soviet Paintings: 1900–1930." With the National Air and Space Museum, the program presented Soviet space scientist Roald Sagdeyev in a lecture about the Soviet mission to Mars. And

"Crossroads of Continents," the first jointly curated Soviet-North American exhibition, was the focus of an all-day seminar, cosponsored with the National Museum of Natural History and featuring Soviet, American, and Canadian anthropologists and ethnographers. RAP also organized a ten-session course, "South Africa Today: Life in a Divided Society," which featured South African leaders and scholars. This course was cosponsored by RAP, the National Museum of Natural History, the Smithsonian Office of Folklife Programs, the Smithsonian Educational Outreach Program, and Howard University.

Other Smithsonian-oriented programs for adults and children that showcased museum exhibitions included "The Chinese Scholar's Studio," with the Arthur M. Sackler Gallery, and "Visions of Paradise: Travels in the Tropical Rainforest," in cooperation with the Smithsonian Institution Traveling Exhibition Service. In addition, the Museum Shops regularly sponsored parties for RAP members and book-signing receptions following lectures.

Outreach

Through scholarships and special projects, RAP actively seeks to involve wider audiences—from inner-city young people to single adults—in its programs. The annual Discover Graphics program, for example, provides free etching and lithography training on Smithsonian presses for nearly two hundred talented area public high school students and their art teachers. The culmination of the program is a juried exhibition of student prints held at the National Museum of American History. The Gene Davis Printmaking Studio, the program's home in the Arts and Industries Building, also serves as a printmaking and bookbinding complex for Smithsonian members and staff.

In 1988 seventy young people and 299 adults from the inner city were awarded scholarships to Young Associates and adult courses through the District of Columbia public school system. Under the auspices of the Smithsonian Office of Elementary and Secondary Education's Career Awareness Program, eighteen inner-city young people served as teacher assistants for Young Associate Summer Camp.

Now in its sixth year, RAP's weekly lecture series, Tuesday Mornings at the Smithsonian, is designed to appeal primarily to the area's large population of retired adults, who are able to participate in daytime activities. Leading Smithsonian scholars presented thirty lectures to 7,300 people in 1988 on a wide range of topics.

Singles Evenings, the widely publicized and emulated series featuring lectures by Smithsonian scholars followed by champagne and hors d'oeuvre receptions, was presented this year at the Hirshhorn Museum and Sculpture Garden, the Grand Salon of the Renwick Gallery, and the S. Dillon Ripley Center. Each of the programs, attended equally by men and women, attracted capacity registration, with a total of 4,100 participants.

Outside Collaboration

RAP cosponsored its fifteenth annual lecture series with the Audubon Naturalist Society of the Central Atlantic States and the Friends of the National Zoo, attracting 7,800 people. Throughout the year, RAP collaborated with other organizations to produce lectures, seminars, films, concerts, and courses for adults and young people. These organizations included the National Geographic Society, National Gallery of Art, Filmfest D.C., Meridian House International, World Wildlife Fund, National Aeronautics and Space Administration, Council for the Advancement and Support of Education, Baltimore-D.C. Institute for Psychoanalysis, *Washington Post*, Washington Project for the Arts, George Washington University, Levine School of Music, and major museums in New York, Baltimore, and Philadelphia. New collaborations were initiated to produce adult courses with the American Association for the Advancement of Science and the Kenan Institute of Private Enterprise at the University of North Carolina, Chapel Hill. New collaborations with publishers, particularly Harry N. Abrams and Doubleday, have resulted in outstanding programs, including receptions and book signings, with writers Allen Ginsberg, Chinua Achebe, Isaac Asimov, John Kenneth Galbraith, and Reinaldo Arenas.

In February RAP organized and produced its second annual seminar in collaboration with the National University Continuing Education Association, "Gorbachev's Initiatives: Implications for Our Time." Forty deans from major universities throughout the United States attended. The seminar featured lectures by eminent scholars; dinners, luncheons, and receptions at the Soviet, Finnish, Dutch, Czech, and Yugoslavian embassies; meetings at the Hillwood Museum and Intelsat headquarters; and visits to exhibits on early Soviet aviation and the Apollo-Soyuz space mission at the National Air and Space Museum.

Foreign embassies that have collaborated with the Resident Associate Program include the Embassy of Canada for a film series, concert, and course; the British Embassy

for an adults' and children's tour of the ambassador's residence; and the embassies of Australia, Czechoslovakia, Finland, Jordan, the Republic of Korea, Sweden, Yugoslavia, Israel, and Mexico for courses, all-day seminars, films, and concerts.

Courses

RAP's Smithsonian Campus on the Mall is the center of continuing education at the Institution, offering six- to eight-week lecture series and intensive weekend courses on topics ranging from interior design to the natural sciences. In four terms during 1988, the program provided more than 200 lecture courses and attracted approximately 10,000 students. With the goal of building a curriculum that gives participants both continuity and guidance, RAP launched a new certificate program, a seven-course series in Western civilization to be given over one and one-half years. Three of the seven courses—on ancient Greece, Rome, and the Middle Ages—were offered in 1988 to capacity audiences. Other certificate programs are planned for the near future.

Among the year's most well-received new courses were several that represented creative partnerships with the business and scientific communities. With the *Washington Post*, RAP presented a course on "Inside the *Washington Post*." "New Frontiers of Science: Discoveries That Could Change Our Lives" was organized in cooperation with the American Association for the Advancement of Science.

Studio Arts

Two hundred fifty-seven studio arts courses and workshops were presented in 1988, with a total attendance of 17,100. Monthly workshops feature hands-on experience in contemporary arts and crafts and both color and black-and-white photography in RAP's state-of-the-art photography laboratory. Notable among the courses, which are offered four terms per year, were "Glazed Finishes: Marbling and Graining"; "Natural Science Illustration," cosponsored with the Guild of Natural Science Illustrators; and "Papermaking." Internationally known instructors and lecturers included New Zealand designer Lee Andersen, painter Jacob Lawrence, and master Japanese woodblock printer Un'ichi Hiratsuka.



Actress Ellen Burstyn reads the poetry of D. H. Lawrence as part of the Resident Associate Program's International Poetry Forum series.

Lectures, Seminars, and Films

Lectures, symposia, and all-day seminars featuring distinguished experts addressed a wide range of current topics in the arts, the humanities, and the sciences. A total of 30,800 people attended 104 lectures during 1988; 2,000 attended 17 seminars; and attendance at 56 films was 15,400. Notable speakers included Lebanese ambassador Abdallah R. Bouhabib, art critic Robert Hughes, science author James Gleick, economist John Kenneth Galbraith, former Egyptian first lady Jehan Sadat, Pulitzer Prize-winning author and journalist David Shipler, violinist Isaac Stern, poet Allen Ginsberg, anthropologist Mary Catherine Bateson, physicist Paul Chu, and novelists Chinua Achebe and Isaac Asimov.

All-day seminars focused on such topics as biblical archaeology, a vicarious tour of Prague, new genetics breakthroughs, creativity, Buddhism, and the current

concern with professional ethics in the American workplace.

Films and film series during 1988 featured both U.S. and Washington premieres. Series included six films from the People's Republic of China and a five-part premiere series showcasing new Australian cinema. RAP hosted the American premiere of Bernardo Bertolucci's award-winning *The Last Emperor*, with Bertolucci and actors John Lone and Joan Chen in attendance. Soviet ambassador Yuri Dubinin introduced a screening of the Soviet film, *Repentance*.

Performing Arts

In its fifth season of sponsoring ticketed performing arts events, RAP presented 115 concerts and performances attended by 32,600 people. Highlights were a dance and music program from Mongolia to mark the opening of the Arthur M. Sackler Gallery; appearances by Broadway and cabaret star Eartha Kitt, French guitarist Pierre Bensusan, the *a cappella* vocal ensemble Chanticleer, and Ireland's traditional music band Patrick Street; new music from the West Coast featuring the Bobs; and the first annual Thelonious Monk International Solo Jazz Piano Competition.

Major series offerings included four jazz concerts, "Round Midnight . . . and After," assembled by jazz expert and Smithsonian Institution Press special projects editor Martin Williams. A new summer jazz series was inaugurated, and the Pro Musicis Foundation series put the spotlight on outstanding young musicians on the threshold of important careers. A highlight of the International Poetry Forum series, now in its fourth season, was actress Ellen Burstyn reading D. H. Lawrence.

Study Tours

More than 18,000 people participated in 544 tours during 1988. These firsthand learning experiences in art, architecture, archaeology, history, industry, and science ranged from overnight excursions to afternoon walking tours, all kept small for the benefit of the participants. Two-day trips took RAP members to Newport, Rhode Island; Wheeling, West Virginia; New York City; and the Hudson River Valley, New York. Tours in six states traced battles and troop movements from the Revolutionary, French and Indian, and Civil wars. A series of intensive rail technology and history tours, offered with the

cooperation of major rail corporations such as AMTRAK and CSX, included such sites as the AMTRAK northeast corridor computerized control center in Philadelphia and the endangered remnants of turn-of-the-century rail yards and equipment shops in Brunswick, Maryland. Visits to nearby areas, led by experts, featured walking tours of historic neighborhoods, parks, and cemeteries and behind-the-scenes tours in museums. Among the most popular local tour sites were Blair House, Congressional Cemetery, the Smithsonian Museum Support Center, and Intelsat headquarters.

Young Associate and Family Activities

In 1988, 15,200 young people—aged four to fifteen—and their families enjoyed workshops, classes, monthly free films, tours, performances, family lecture programs, and summer camp through RAP. Workshops and classes designed for adults and children together continue to be valuable learning tools. In all, there were 211 Young Associate and family activities, kept small for maximum learning. "Dinosaurs Galore and More" was the theme of this year's Family Halloween Party, which was held in the National Museum of Natural History. Other annual events are a winter film and reception in conjunction with the Trees of Christmas display in the National Museum of American History, the summer "Evening Picnic at the Zoo," and a family program during Children's Book Week.

Discovery Theater

After a year in Baird Auditorium at the National Museum of Natural History, Discovery Theater returned to its home in the Arts and Industries Building in April 1988. Live theater performances for young people and their families are presented from October through June each year. Sixty-five thousand people—about 50 percent of whom were members of minority populations—attended 215 performances during 1988. In March, Discovery Theater produced *Unto These Shores*, a highly praised original production about recent emigrants to the Washington, D.C., area.

Women's Committee of the Smithsonian Associates

Through grants to Smithsonian museums and bureaus, the Women's Committee of the Smithsonian Associates supports a wide variety of creative and practical efforts that might not otherwise be possible—from educational programs to scientific research equipment to the care and restoration of objects in museum collections. Sixty-three active members and seventy resource members contributed more than 7,000 volunteer hours to the Smithsonian. Net proceeds from the annual Christmas Dinner Dance and the 1987 Washington Craft Show enabled the committee to award forty-one grants totaling \$140,210 to sixteen museums and bureaus. Projects were supported in amounts ranging from \$700 to \$9,000. The year also marked the establishment of the Women's Committee Endowment Fund with an initial contribution of \$20,000.

The inherent variety of the Smithsonian Institution is reflected in even a partial list of the projects funded by the Women's Committee. Awards were used to fund workshops for elementary school teachers titled "Weather" and "The Solar System"; scholarships for minority participants in seminars sponsored by the Smithsonian National Associate Lecture and Seminar Program; a pilot education program on African art and culture for District of Columbia high school students; the purchase of a modern Japanese Nabeshima-ware bowl for the Arthur M. Sackler Gallery; construction of acid-free boxes to store rare American Indian language publications; establishment of an ecological buffer zone around the Barro Colorado Nature Monument in Panama; and restoration and conservation of a family portrait of William Jervis Hough, an early Regent of the Smithsonian.

The National Museum of American History received support for an exhibit to mark Irving Berlin's centennial year, for research and architectural drawings of the facade of Chicago's Hull House, and for the restoration of the Appleton organ. The National Zoological Park was given funds for a transparent beehive and video monitoring equipment for the Beaver Valley exhibit, radio tracking equipment for a new exhibit of free-ranging golden-lion tamarins, and seed money to establish a quantitative testing program for poisonous plant compounds. The National Museum of Natural History received support to purchase a collection of Cretaceous decapods from the Chesapeake and Delaware Canal, to construct an exhibit on the Aldabra Atoll Research Project, and to purchase specimens and tools to enable the Naturalist Center to offer a hands-on high school anthropology program.

On May 25, 1988, the Smithsonian Institution dedicated the Mary Livingston Ripley Garden in honor of the founder of the Women's Committee. Located between the

Arts and Industries Building and the Hirshhorn Museum and Sculpture Garden, this garden has long been of special interest to Mrs. Ripley and the Women's Committee, which provided initial funding for its establishment in 1975. Over the years, the committee has continued to support the development and maintenance of the garden, most recently with a grant for plants, signs, and an irrigation system.

The seventeenth annual Christmas Dinner Dance was held in the new restaurant of the National Air and Space Museum. An established Smithsonian tradition, this gala evening again proved to be a tremendously successful fund-raising event.

One hundred artist-craftspersons from thirty-three states participated in the sixth annual Washington Craft Show, which has been acclaimed as one of the best in the nation. In conjunction with the April show, a preview reception and silent auction were organized to raise funds for the Smithsonian. In addition, the High School Craft Competition recognized young artisans from local school districts and offered them the opportunity to meet some of the country's finest craftspersons.

ADMINISTRATION

John F. Jameson, Assistant Secretary for Administration

Administrative and Support Activities

Operating primarily behind the scenes at the Smithsonian, a network of administrative and technical support offices provides services essential to the smooth functioning of the Institution. These offices support scholarly and public activities and ensure central oversight of and accountability for the management and use of financial, personnel, and physical resources. Fifteen offices and their divisions serve a range of functions, from personnel administration to protection services, from congressional liaison to environmental management and safety. Funding for central services in 1988 amounted to about 7 percent of the Institution's total operating expenses, exclusive of maintenance, operation, and facilities protection costs.

Office of Information Resource Management

In its continuing effort to support Smithsonian computer users, the Office of Information Resource Management (OIRM) opened a Help Desk that offers telephone or walk-in assistance. The OIRM training program has expanded to feature eleven courses, involving over 1,000 Smithsonian staff in more than 100 classes. Consultation in office automation and scientific applications is also available, and the user production area provides assistance in computer mapping and graphics, document conversion, image scanning, and optical character recognition.

The OIRM continued to coordinate the development of a Smithsonian information architecture. The completed architecture, consisting of integrated graphic models and supporting documentation, will describe the Institution's information requirements and provide a tool for systems planning and development.

Under the OIRM Communications Management Division, all Mall locations will soon be linked by a high-speed integrated telecommunications system, which will join more than 300 personal computers in a network with the central computing facility.

Office of Protection Services

During 1988 the Office of Protection Services (OPS) was involved in a record number of escorts for objects in transit to and from the Smithsonian and other museums and institutions in the United States and abroad. Close cooperative efforts between the OPS investigative staff and the Columbus, Georgia, police department resulted

in the recovery of a Smithsonian painting stolen about twenty years ago.

In the area of occupational health services, the asbestos monitoring program expanded to include annual physical examinations for more than 300 staff members. The employee assistance program has grown and an additional professional counselor has been added to the staff. Medical standards for diving scientists were refined so that they are consistent with other academic and scientific diving medical standards.

The OPS staff is completing a museum security lexicon, a technical vocabulary index of more than 500 terms or concepts relating to security, fire safety, and health in museums and cultural institutions. Produced in conjunction with the International Council of Museums, the lexicon will be published in English, Spanish, French, and German, with plans to publish later in Arabic, Russian, Chinese, Japanese, and Portuguese.

Office of Printing and Photographic Services

Filming is complete for two videodisc projects: updating the office's 35-millimeter slide files and adding several small collections to the videodisc produced for the National Museum of American History's Division of Transportation. Filming is more than half complete for the first in a series of videodiscs of 35-millimeter black-and-white negatives. To protect and identify the growing number of Smithsonian videodiscs, the Office of Printing and Photographic Services (OPPS) has designed and printed a standard videodisc jacket and label.

OPPS staff is active in teaching programs inside and outside the Institution. The office hosts a photographic workshop for museum professionals each year and cosponsors, with the White House News Photographers Association, a free one-day workshop for local high school students.

Other Activities

The Office of Programming and Budget (OPB) continued to implement improvements in the internal budget formulation process as the result of a review of procedural changes made in 1987. The office also expanded the use of automation to collect data and assemble budget narratives for submission to the Office of Management and Budget and to Congress. The OPB concentrated efforts on increasing analytical support to senior Smithsonian

managers during the 1990 fiscal year budget formulation process. The office also issued two releases of the first Smithsonian Institution *Budget Manual* and provided Institution-wide training on how to write budget justifications. Detailed program and financial information is now more easily accessible, aiding decisionmaking within the Institution and tightening the relationship between long-range planning and budgeting.

The Office of Personnel Administration devoted much of the past year to consolidating and refining its implementation of the Federal Employees Retirement System, the Immigration Reform and Control Act, the personnel and payroll system operated by the National Finance Center of the Department of Agriculture, and the Trust Fund benefits program. Union contracts with both the National Maritime Union and Local 2463 of the American Federation of Government Employees were automatically extended.

The Office of Equal Opportunity (OEO) placed renewed emphasis on affirmative action efforts, and the representation of minorities and women in professional and administrative positions continued to improve. Employment of disabled persons within the Institution also continued to increase. OEO-sponsored activities for staff and the public to highlight ethnic observances and expand cultural understanding received increased attention and support throughout the Institution.

The Office of Procurement and Property Management continues to provide logistical support and acquisition policy guidance to the varied program areas of the Smithsonian. In 1988, contracting projects became more complex and the total dollar value and number of requisitions increased. OPPM continued to delegate small purchasing authority throughout the Institution, thus eliminating the need for processing large volumes of requisitions in small dollar amounts. To increase the safety of visitors and employees, contracts were awarded for the replacement of PCB transformers, the removal of asbestos, and the renovation and replacement of the terrace of the National Air and Space Museum.

The Management Analysis Office (MAO) continued to identify and promote actions to strengthen internal controls. The office conducted several reviews of Institution units and activities, including those that might reduce costs and improve efficiency by hiring outside contractors to perform commercial functions traditionally carried out by Smithsonian staff. The MAO also coordinated the placement of graduate and postgraduate students in business administration, who worked on important management projects at the Smithsonian Museum Shops, the

National Air and Space Museum, and the Office of the Assistant Secretary for Administration. The office publishes a biweekly employee bulletin, which covers timely administrative matters.

The Smithsonian Institution Ombudsman, a position established in 1977, serves as a neutral party to whom employees may bring work-related problems or concerns that cannot be resolved through normal channels. During the past year more than 200 employees have sought help for problems ranging from policy questions to pay and personnel matters to conflicts with supervisors.

In addition to assessing the impact of proposed legislation on the Smithsonian, the Office of Congressional Liaison monitored several important Institution-related initiatives during the legislative process. Bills proposing the Smithsonian's affiliation with the Museum of the American Indian and the repatriation of American Indian skeletal remains and ethnographic materials demanded the greatest attention this year.

The Travel Services Office continued to help Smithsonian employees and consultants make efficient and economical travel plans. Travel was arranged, for example, for the Festival of American Folklife participants and for a growing number of people involved in workshops and symposia.

The Office of Audits and Investigations, which reports to the Under Secretary of the Smithsonian, continued to perform regular internal audits of both federal and trust-funded activities. External audits involving claims, cost proposals, and cost and pricing data related to contracts, grants, and other financial agreements resulted in considerable savings to the Institution.

In the Office of Facilities Services, highlights under the direction of the Office of Design and Construction included the completion of the new \$15 million restaurant at the National Air and Space Museum. Construction of the Mathias Laboratory Wing at the Smithsonian Environmental Research Center was also completed. Although there were some delays in projects at the Smithsonian Tropical Research Institute in Panama because of the political situation there, construction resumed on the Tupper Research and Conference Center, and major upgrading of facilities on Barro Colorado Island started. Construction also began on the visitor center in the Smithsonian Castle Building. Freer Gallery of Art renovations and construction on the link to the Sackler Gallery were expected to begin in October 1988. The planning phase of the multiyear, multimillion-dollar heating, ventilating, and air-conditioning rehabilitation project at the National Museum of Natural History con-

Smithsonian Institution Women's Council

tinued throughout the year. Planning also continued for an extension to the National Air and Space Museum. Planning was conducted in connection with the proposal for a Museum of the American Indian on the last remaining Mall site.

The Office of Plant Services continued to refine its automated financial, personnel, and program management systems. The local area computer network has enabled the staff to standardize and maintain forms, reports, schedules, and maintenance data. Energy conservation efforts were ongoing throughout the Institution, as the office began working more closely with utilities companies on strategies to reduce utility consumption. Comprehensive facility maintenance and repair inspections continued during the year and included an inspection of the Smithsonian Tropical Research Institute.

The revision of the *Smithsonian Handbook on Safety and Environmental Management* was one of the year's most important initiatives for the Office of Environmental Management and Safety (OEMS). The handbook was rewritten to broaden its scope and its applicability to current requirements. Following last year's successful implementation of management evaluation/technical reviews, the OEMS conducted twenty-two facility reviews this year. The staff also held several important life-safety training courses and implemented a comprehensive hazardous waste disposal program at all Smithsonian facilities to ensure compliance with Environmental Protection Agency requirements for identifying, storing, and disposing of hazardous waste. The office conducted a successful three-day workshop on program development and problem-solving in areas such as fire protection, disaster planning, occupational safety and health, and environmental management.

The Office of Architectural History and Historic Preservation has added depth to the understanding of Smithsonian buildings with two architectural history studies on aspects of the Natural History Building (1910). Further study was devoted to the architectural history of the National Zoo (1891-1970), including a special section on the artwork of the zoo. Much was learned about the Smithsonian Institution Building (1858) through historical studies of the windows and the original structure. Studies of old paint chips resulted in the development of a palette of historically accurate colors, which will be used in some of the public areas of the building. As required by the National Historic Preservation Act, the staff presented five major projects to the District of Columbia Historic Preservation Officer and to the federal Advisory Council on Historic Preservation.

Established in 1972, the Smithsonian Institution Women's Council identifies and studies the concerns of employees, advises management on women's issues, and strives to improve working conditions. Chaired by Judith O'Sullivan and composed of twenty members elected by Smithsonian staff, the council is particularly concerned with ensuring the equal treatment of women at the Smithsonian. It holds open meetings on the second Wednesday of each month in the Regents Room of the Castle.

Four standing committees—Benefits and Child Care, Newsletter, Outreach, and Programs—carry out most of the council's tasks. Ad hoc committees are created when necessary to further council goals. In 1988 the council continued to support the establishment of the child care center for children of Smithsonian employees; the center opened in October 1988. The council cooperates with the Child Care Advisory Board, on which two council members serve. In addition, the council continued publication of its quarterly newsletter *Four Star*, a major communication link among employees; presented programs on sexual harassment; and researched a proposed comprehensive brochure on the Smithsonian's affirmative action programs.

UNDER SEPARATE
BOARDS OF TRUSTEES

John F. Kennedy Center for the Performing Arts

Ralph P. Davidson, Chairman

To citizens and government leaders in this country, visitors from abroad, and members of the diplomatic community in the Nation's Capital, the John F. Kennedy Center for the Performing Arts symbolizes our nation's commitment to the performing arts and its dedication to the cultural enrichment of its people. The center gives American accomplishments in the performing arts the national recognition they deserve by bringing programs from all over the United States to its stages. Through its presentations and its nationwide education programs, the center gives millions of Americans a chance to learn about and enjoy live performing arts. The center also encourages young and lesser-known artists by giving them opportunities to perform through national competitions that provide them recognition.

Created by an act of Congress in 1958 as a self-sustaining bureau of the Smithsonian Institution, the Kennedy Center is both a presidential memorial under the aegis of the Department of the Interior and a privately supported performing arts center directed by a board of trustees. Thirty citizen members of the board are appointed by the President; six congressional representatives and nine designated *ex officio* representatives of the executive branch complete the membership. This annual report covers the activities and programming presented by the performing arts center in its six theaters and around the nation through its touring and education programs.

Roger L. Stevens, who served as chairman of the Kennedy Center's board of trustees from 1961 to 1988 and led the center since it opened in 1971, retired this year to the position of founding chairman. Ralph P. Davidson, who had served as president and chief executive officer of the Kennedy Center since February 1988, was elected chairman of the center by the board of trustees on August 4, 1988.

Performing Arts Programming

The 1987-88 season at the Kennedy Center was attended by 1,470,785 people in the Opera House, Concert Hall, Theater Lab, and Eisenhower and Terrace theaters. Another 158,611 people enjoyed free performances through the Kennedy Center's Education Program, Holiday Festival, Cultural Diversity Festival, Kennedy Center Open House Arts Festival, and other activities throughout the year. Another 70,000 people attended the films presented in the American Film Institute Theater.

In June the center presented the San Francisco Festival at the Kennedy Center, the first in a proposed series of

regional festivals that will illuminate the unique aspects of the performing arts that thrive in different regions of the country. The festival consisted of four weeks of drama, dance, music, film, sights, sounds, tastes, history, and science exhibits from the City by the Bay. This was also the year that the center launched its "Washington, Front and Center!" series of performances, designed to showcase the varied talents of Washington-area performing artists.

Drama and Musical Theater

By far the most unusual event of the season came courtesy of the Kennedy Center San Francisco Festival, which presented in the Opera House a sound and light show, George Coates Performance Works' *Actual Sho*. An eclectic score, dances, scrims, and bizarre three-dimensional slides and film projections were just a few of the elements of this music-theater spectacle. The festival also gave Washington a chance to see the work of two distinguished theater companies from the West Coast: the San Francisco Mime Troupe, which performed its African spy thriller with music, *The Mozambique Caper*, and Theatre Rhinoceros, which brought *Quisbys*, the fourth in the company's cycle of AIDS dramas.

This was the year of the "extended-by-popular-demand" shows. Lily Tomlin's accolade-laden *Search for Signs of Intelligent Life in the Universe* scored an unprecedented twenty-week run in the Eisenhower Theater, followed closely by the return engagement of the musical, *Les Misérables*, whose epic sixteen-week run matched its grand theatrical scope. *Shear Madness* is still going strong, now in its second year of Washington performances in the Theater Lab Cabaret.

The Eisenhower Theater also featured engagements of the hip new musical, *Mail*, and two biographical offerings—the British drama, *Breaking the Code*, with a brilliant performance by Derek Jacobi as Alan Turing, and *Sullivan & Gilbert*, a comedy with music by Ken Ludwig.

On the musical front there were *Drood!* and *H.M.S. Pinafore* in the Opera House. The Terrace Theater rounded out the season with the Acting Company's Cuban-flavored *Much Ado about Nothing*; Larry Shue's remarkable last play, *Wenceslas Square*; and two popular productions from the Washington theater scene under the umbrella of "Washington, Front and Center!"—GALA Hispanic Theater's *Matatangos* and Woolly Mammoth Theatre Company's *Christmas on Mars*.



Heidi Ryom and Palle Jacobsen in the Royal Danish Ballet's production of *Abdallah* at the Kennedy Center Opera House. (Photograph by Rigmor Mydtskov)

Dance

The 1987-88 season featured the long-awaited return engagement of the Royal Danish Ballet and the Washington debuts of the Royal Spanish National Ballet and the Joffrey Ballet's new *Nutcracker*. The Danes, in their first visit to Washington since 1982, brought two Bournonville full-lengths—*Napoli* and *Abdallah*—while the Spaniards presented a week of works that blended ballet and flamenco. The Joffrey's *Nutcracker*, which enjoyed a two-week, sold-out run, transplanted the beloved ballet to a

Victorian-American setting with winning results. Rounding out the ballet season were the Houston Ballet, the New York City Ballet, the American Ballet Theatre, and Dance Theatre of Harlem.

"Washington, Front and Center!" provided a showcase at the Kennedy Center for nine Washington dance organizations, while Dance America, sponsored jointly by the Kennedy Center and the Washington Performing Arts Society, presented the best of modern dance, including engagements by the Daniel West Dancers, the Erick Hawkins Dance Company, the Mafata Dance Company, and Nina Wiener and Dancers.

Music

The National Symphony Orchestra played in five countries during a three-week European tour. The orchestra also performed for twenty-eight weeks in its home, the Kennedy Center Concert Hall, and for a week at the annual Casals Festival in Puerto Rico. Three holiday concerts on the lawn of the U.S. Capitol, a summer series at Wolf Trap Farm Park, and an evening of American music during the San Francisco Festival rounded out the orchestra's season.

The Terrace Concerts—featuring piano and vocal recitals, chamber ensembles and orchestra, the International Series, the United States Information Agency's Artistic Ambassadors Series, and the Young Concert Artists Series—presented a roster of international stars and up-and-coming young artists. These included pianist Coleman Blumfield, the Guarneri String Quartet, three evenings of Music from Marlboro, a program devoted to the music of American composer Ben Johnson, tenor Michael Hume, and the Cleveland Octet.

The annual Kennedy Center Friedheim Award, designed to recognize and encourage the creation of new American music, was awarded to Christopher Rouse.

Theater Chamber Players of Kennedy Center, the Choral Arts Society and Oratorio Society of Washington, and the Paul Hill Chorale returned for their annual concerts, as did the Lincoln Center Mostly Mozart Festival. A multitude of free events, many featuring performers from the Washington metropolitan area, took place in conjunction with the Holiday Festival in December and the Kennedy Center Open House Arts Festival in the fall.

Kennedy Center Associate Organizations

Many events at the Kennedy Center are produced by the center's artistic associates: the American Film Institute, which presents classic films, independent features, foreign films, and contemporary video works in its 224-seat theater, and the Washington Opera, which this year produced its first Eisenhower Theater season—*Ruddigore*, *L'Italiana in Algeri*, *The Consul*, and the rarely seen *L'Amico Fritz*. In addition, the Washington Performing Arts Society presented musicians and dancers from around the world in its diverse series.

Educational and Public Service Programming

As the national cultural center, the Kennedy Center has a unique responsibility for advancing all the arts in the edu-

cation of the nation's youth. In 1988 the Education Department sponsored performances and other events that reached more than 3.5 million people nationwide through four programs: the Alliance for Arts Education, American College Theater Festival, National Symphony Orchestra Education Program, and Programs for Children and Youth.

The Alliance for Arts Education is a national network of volunteer committees in the states and special jurisdictions that develop and promote the arts in high schools and school districts. In 1988 two arts educators were awarded Kennedy Center Fellowships for Teachers of the Arts, and twenty-three school principals and superintendents were cited for fostering the arts in their schools and school districts. The inaugural Kennedy Center/National School Boards Association Award and four citations of excellence were given to school boards for their support of arts education. Approximately 200 arts education professionals attended the biennial National Summit Conference on the Arts in Education at the Kennedy Center, at which artists Alwin Nikolais and Laurie Anderson were featured speakers. The alliance also sponsored the second phase of Arts Dialogue—Australia, a major cultural exchange with Australia marking that country's bicentennial in 1988. The alliance produced the presentation and performance of twenty Presidential Scholars in the Arts in the Concert Hall. More than a million young people, families, and teachers participated in Imagination Celebration, the Kennedy Center's national children's arts festival.

The American College Theater Festival (ACTF) celebrated its twentieth anniversary in 1988—the second year under major corporate sponsorship by the National Broadcasting Company—as it continued to recognize and promote the finest work produced in university and college theater programs. More than 17,000 students and 2,100 faculty members representing nearly 50 schools presented more than 700 college theater productions in 1988. Sixty-four productions were student-written. Eighty-five productions were mounted at twelve regional festivals. Seven productions were brought to Washington for the national festival at the Kennedy Center in April, along with one invitational production from the University of Evansville and one from Yale University in honor of ACTF's two decades. Audiences across the country totaled more than 800,000. ACTF also cosponsored numerous awards programs in playwriting, design, criticism, and acting.

The National Symphony Orchestra Education Program continued to present concerts designed to help further the



Lily Tomlin in her record-breaking play, *The Search for Signs of Intelligent Life in the Universe*, at the Kennedy Center Eisenhower Theater. (Photograph by Norman Seeff)

music education of students and adults in the Washington metropolitan area. The orchestra presented sixteen Young People's Concerts to more than 38,000 elementary school students and two "Meet the Orchestra" concerts for 4,113 secondary school students. For the general public, there were four Encore Concerts for Families and the Young Soloists' Competitions for high school and college musicians, with the finals presented as free concerts.

Programs for Children and Youth provided nearly 200 free or low-cost performances and events to audiences of

almost 74,000. By 1988 the program had commissioned thirty-one new theater and music works for young people. The programs also included classes in acting and performance for approximately 750 Washington-area young people. In addition, about 150 young people participated in "Reaching the Write Minds" playwrighting workshops; three original scripts were given staged readings as part of the Kennedy Center Imagination Celebration 1988.

The Educational Services Division uses the performing arts resources at the Kennedy Center as the basis for workshops and other educational formats and events for students, teachers, parents, and the general public. This year more than 2,500 teachers, 2,200 other adults, and 4,200 high school students were direct participants in these programs.

The Kennedy Center Education Department gave the 1988 Frances Holleman Breathitt Award for Excellence to actor Richard Thomas in recognition of his contributions to the arts and to young people.

The Kennedy Center carries out a broad range of cultural diversity activities. These include the National Program for Cultural Diversity, which encourages—through its sponsorship of performances, commissions, workshops, conferences, internships, and advisory and technical services in arts administration—artistic activities that reflect our nation's cultural and ethnic variety. These programs are supported by the U.S. Department of Education and by private funds raised by the Kennedy Center.

Subsidies from the Kennedy Center support many free and low-priced performances and events that were enjoyed in 1988 by more than a million people in Washington, D.C., and around the country. Since it opened in September 1971, the Kennedy Center has maintained a Specially Priced Ticket program in conjunction with performances produced and presented at the center. The largest of its kind in the nation, the program makes half-price tickets available to students, persons with permanent disabilities, senior citizens, low-income groups, and certain military personnel. The Kennedy Center bears the attendant costs.

In addition, 17,494 people visited and used the Performing Arts Library, which is a joint project of the Kennedy Center and the Library of Congress.

Funding

The Kennedy Center is unique in its operation as both a performing arts center and a presidential memorial. The

National Park Service provides nearly \$5 million in funding through annual appropriations to maintain and secure the buildings as a presidential memorial; the performing arts operation is charged its pro rata share of such costs, which totals more than \$1 million annually. The Kennedy Center's board of trustees is wholly responsible for the cost of maintaining and improving the theaters, backstage, and office facilities.

Artistic programming at the Kennedy Center and its day-to-day performing arts operations are largely privately supported. The Kennedy Center also raises private funds for its wide range of free or modestly priced educational and public service activities. The nation's business community has made important contributions through the Corporate Fund, established in 1977 by a group of national corporate leaders. Under the leadership of Corporate Fund chairman John Creedon, chairman and chief executive officer of Metropolitan Life Insurance, the 1988 Corporate Fund contributed more than \$2.7 million from nearly 300 corporations.

The Kennedy Center's campaign to build a permanent endowment to help achieve the financial stability needed to sustain and increase the quality and variety of programming continued in 1988. As a result of the center's 1986 administrative affiliation with the National Symphony Orchestra, a joint campaign is now under way to build an endowment for the two institutions.

Kennedy Center Honors

The Kennedy Center Honors were first awarded by the board of trustees in 1978 to recognize individuals who have made outstanding cultural contributions to the nation. The annual Honors Gala is the Kennedy Center's most important fund-raising benefit. The 1987 honored artists were Perry Como, Bette Davis, Sammy Davis, Jr., Nathan Milstein, and Alwin Nikolais.

Friends of the Kennedy Center

The Friends of the Kennedy Center provide financial, administrative, volunteer, and community relations assistance to the center. Founded in 1966 to raise grass roots support among private citizens for the building of the national cultural center, the organization counted more than 35,000 donor members and 600 volunteers in 1988. Revenues from the Friends membership program, fund-raising events, and gift shops help to support the overall

operations of the center, as well as a number of national and community projects. Friends-sponsored events this year included the fourth annual Kennedy Center Open House Arts Festival, a free, all-day festival of performances by some of the best artists in the Washington area. The festival drew more than 65,000 people to the Kennedy Center.

The Friends volunteers—who contributed more than 60,000 hours at an estimated value of a quarter of a million dollars—conducted free tours for more than 200,000 people, staffed the gift shops and information center, provided assistance to visitors with disabilities, and administered the Specially Priced Ticket program. The Friends also administered the membership and activities of the National Symphony Orchestra Association and FANS (Friends Assisting the National Symphony), including an annual Radiothon and 10-kilometer run. Although the majority of Friends members are drawn from the Washington area, there are members in all fifty states, with Texas established as the first state chapter.

National Gallery of Art

J. Carter Brown, Director

The National Gallery of Art, although formally established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own board of trustees, the ex officio members of which are the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution. Of the five general trustees, Franklin D. Murphy continued to serve as chairman of the board, with John R. Stevenson as the gallery's president. Also continuing on the board were Ruth Carter Stevenson, Robert H. Smith, and Alexander M. Laughlin. Paul Mellon is honorary trustee and Carlisle H. Humelsine is trustee emeritus.

During the year, visitors entering both of the gallery buildings numbered 7,173,926. Distinguished visitors from other countries included Raisa Gorbachev, the wife of the general secretary of the Soviet Union; King Carl XVI Gustaf and Queen Silvia of Sweden; Vigdis Finnbogadóttir, president of Iceland; Mrs. Brian Mulroney, wife of the prime minister of Canada; Josip Vrhovec, vice-president of Yugoslavia; Tian Jiyun, vice-premier of the State Council of the People's Republic of China; and Prince Richard, duke of Gloucester. The annual survey of visitors seeking assistance at the information desks during one week in August counted more than 3,500 visitors from 48 states and more than 2,000 from 63 foreign countries.

Exhibitions

The first exhibition to open during the fiscal year was devoted to the drawings, prints, and decorative arts of the sixteenth-century Italian artist, Rosso Fiorentino, who went to France in 1530 to become the prime painter to King Francis I. The exhibition included twenty-five of his finest surviving drawings and eighty prints, as well as majolica, Limoges enamels, and tapestries after his compositions.

A retrospective exhibition of the works of American artist Georgia O'Keeffe celebrated, a year after her death, the 100th anniversary of her birth. Approximately 115 oil paintings, watercolors, pastels, and drawings—abstractions, flower paintings, cityscapes, landscapes, and still lifes—illustrated the most influential aspects of her work.

"An American Sampler: Folk Art from the Shelburne Museum" presented 121 works from America's artistic and cultural heritage, selected from the vast holdings of the Vermont museum. Included were decorative but use-

ful items such as quilts, hooked rugs, weather vanes and whirligigs, decoys, carousel animals, and trade signs.

"The Human Figure in Early Greek Art" exhibited sixty-seven marble, bronze, and terracotta works from the Geometric period of the ninth century B.C., through the Orientalizing and Archaic periods, to the early Classical period of the fifth century B.C.. Most of the works had never before traveled outside Greece. The exhibition explored the treatment of the human figure during the formative stages of the Greek classicism that influenced Western art for many centuries thereafter.

In honor of the state visit of Soviet General Secretary and Mrs. Gorbachev, the gallery and the Hermitage Museum in Leningrad agreed to a temporary exchange of paintings. The Hermitage lent its Titian *Saint Sebastian* and the gallery will lend its *Laocoön* by El Greco for the Hermitage's 225th anniversary in 1989.

During seven weeks in April and May, five exhibitions opened to the public presenting a wide range of subject matter, from the baroque decorative arts in the Swedish royal collections to the gaily patriotic "flag paintings" of American impressionist Childe Hassam. An exhibition of 100 objects from 1550 to 1700, borrowed from the Swedish government, was part of "New Sweden '88," a nationwide observance of the 350th anniversary of the first permanent Swedish colony in North America. Included in "Sweden: A Royal Treasury, 1550-1700" were jewels, armor, drawings, enamels, sculpture, and elaborate court costumes.

The comprehensive exhibition, "The Art of Paul Gauguin," presented 235 paintings, sculptures, and works on paper, in addition to rarely seen ceramics, from the beginning of the artist's artistic career in France to its end at his death in the Marquesas in the South Pacific. Sixty-one paintings by the nineteenth-century American founder of the luminist movement, Fitz Hugh Lane, provided an interesting contrast in subject matter and style to those of the French artist. Painted during the years 1844 to 1864, most of the works showed the waterfronts, harbors, and coastlines of New England from Massachusetts to Maine. "The Flag Paintings of Childe Hassam" was the second in a series of exhibitions concentrating on important aspects of American impressionism. The artist used the theme of the flag-decorated streets of New York City during World War I, between 1916 and 1919, to explore elements of composition, shape, color, and light.

"Masterworks from Munich," a selection of sixty-two paintings by major Italian, Flemish, Dutch, German, Spanish, and French artists from the sixteenth through the eighteenth centuries was generously lent by the Alte

Pinakothek in Munich, one of the greatest public collections in Europe. Included were important paintings by Rubens, Rembrandt, Titian, Tintoretto, Van Dyck, Murillo, Velazquez, El Greco, Boucher, and Fragonard.

A number of smaller exhibitions during the year featured selections from the gallery's collection of graphics. "English Drawings and Watercolors, 1630-1850" included works by British-born artists and works made in England by foreigners. "Naive Visions" showed watercolor renderings of decorative arts from the gallery's Index of American Design, along with toys from the Shelburne Museum and several paintings from the collection of works by American naive artists donated by Col. Edgar William and Bernice Chrysler Garbisch. "Drawings on Stone: Early European Lithography" showed examples of this process from its invention in 1796-98 to the 1820s and 1830s. An exhibition of eighty fifteenth- and sixteenth-century Italian Renaissance drawings included some of the finest and earliest sheets in the permanent collection by such artists as Mantegna, Leonardo, Perugino, Tintoretto, and the Carracci.

A highlight of the year was the reinstallation of the gallery's twentieth-century collection in the East Building, for the tenth anniversary of the opening of the building. The installation covers almost 30,000 square feet and includes a number of loans from private collections.

Education Programs

The department of public programs in the education division presented five minicourses in conjunction with the exhibitions of Greek sculpture, sculpture from the Patsy and Raymond Nasher Collection (an exhibition that opened in fiscal year 1987), the works from the Alte Pinakothek in Munich, folk art from the Shelburne Museum, and Gauguin. The department also produced interpretive materials and introductory brochures for three exhibitions of the works of George Catlin being circulated by the newly inaugurated loan exhibition program of the gallery's National Lending Service. During the year the department was actively involved with the Museum Education Consortium's interactive videodisc project, working with the staffs of the Museum of Modern Art, the Metropolitan Museum of Art, the Philadelphia Museum of Art, the Art Institute of Chicago, the Brooklyn Museum, and the Museum of Fine Arts, Boston, to explore uses of computer technology as a visual and textual resource in the classroom.

The academic programs section of the public programs

department administers the regular Sunday lecture series. This year the section also offered three special Sunday programs in conjunction with exhibitions. "Conversations with Artists, Part IV" presented sculptors George Segal and Scott Burton discussing their work, examples of which were on view in the Nasher collection. In a program during the O'Keeffe exhibition, National Museum of American Art director Charles Eldredge lectured, research curator Sarah Greenough discussed O'Keeffe's letters, and film footage of the artist at her ranch in New Mexico was shown. During the Gauguin exhibition, a program explored the artist's years in Brittany and included talks by Bogmila Welsh-Ovcharov and Robert Welsh. Also in 1988, two new annual graduate lecturing fellowships were established.

The special exhibition projects section prepared introductory brochures, recorded tours, and audiovisual programs for the temporary exhibitions and worked with the curators to prepare wall texts. These materials are sometimes the key to increasing the visitor's understanding of the contents of the more popular exhibitions, where large crowds make guided tours impractical. Many of these programs continue on with the exhibitions to their other venues.

The new teacher and school programs section of the department combined the former young people's programs and volunteer docent training program. In planning for expanded services to the schools, the section surveyed area curriculum supervisors to seek their ideas and opinions. A new program on the Middle Ages included a film based on the book *Castles*, by David Macaulay, and a tour of paintings, sculpture, objects, and furniture relating to the period. A new type of teacher packet, consisting of a classroom display of photographs and captions, background material, and a bibliography, was prepared for the Shelburne exhibition. In collaboration with the Washington Cathedral, a program for junior high and high school students was planned with social studies curriculum specialists from the Washington, D.C., public schools. The section also worked with the Prince George's County, Maryland, traditional magnet school to bring sixth-, seventh-, and eighth-grade students to the gallery for tours and workshops on mythology, medieval life, and the Renaissance.

The Saturday morning family programs continued to be popular and were extended through the summer. A film on the pentathlon was shown in conjunction with a visit to the Greek exhibition, and a look at twentieth-century sculpture was combined with a workshop in which families created their own three-dimensional

masks. A highlight of the program was a performance by Gordon Hawkins, a member of the Affiliate Artist Program sponsored by the Washington Opera Guild, who talked with parents and children about his life in the opera.

William Merritt Chase at Shinnecock, a film produced in 1987 by the department of extension programs, was awarded a 1988 CINE Golden Eagle. The department also produced a series of films on the historical backgrounds of modern painting designed to support secondary school curricula.

Acquisitions

New acquisitions in 1988 spanned the range of the gallery's collections. A portrait by seventeenth-century British artist Gerard Soest was bequeathed to the gallery, augmenting the small collection of British works of this period. The Collectors Committee purchased two important paintings for the twentieth-century collection. *The Human Condition*, 1933, is one of the earliest and best known of René Magritte's window paintings and one of the key monuments of surrealism. A Russian constructivist work painted in 1919 by Alexander Rodchenko is the first by that artist to enter the collection. American artist Georgia O'Keeffe, who died in 1987 at the age of ninety-nine, bequeathed eight major paintings done over thirty-six years of her career. Included were an early monochrome abstraction, a small still life of a spiraling snail shell, a large painting from a series inspired by the view of the sky and distant horizon seen from an airplane, and one of her most important series, five paintings of a jack-in-the-pulpit.

A draped female figure done in the 1920s by American sculptor Daniel Chester French joined the collection of small bronze sculptures. The medals collection was enhanced by a purchase at auction of six fine Renaissance medals, including the unique medal of *Claudius* by the Florentine Beltrame Belfradelli, called Varro, an assistant of Filarete on the great bronze doors of St. Peter's in Rome. Previously unpublished before the 1988 sale catalogue, the medal is a key to the understanding of the Medallist of the Roman Emperors (often identified as Filarete); the gallery owns an important group of the medallist's works.

Among the additions to the graphics collection were three outstanding British watercolors. An enchanting scene of *Skaters on the Serpentine in Hyde Park* is perhaps the finest work by Julius Caesar Ibbetson; a haunt-

ing, delicately shaded *Monte Circeo at Sunset*, by John Robert Cozens, is still on the artist's original mount; and a fresh and lively Sandby contains a long inscription by the artist telling the story of the watercolor.

Outstanding among the other drawings added to the collection during the year were a characteristically energetic Parmigianino chalk drawing of *Mercury*; a sheet of ink sketches by Bonnard, including a promenade of women in fancy hats; a pre-Raphaelite work by Dante Gabriel Rossetti, a mysteriously moving portrait of Jane Morris reclining on a sofa; a Redouté watercolor, heightened with gold on vellum, of a bouquet of flowers with insects; and a pastel landscape by Roussel that is a study for a color lithograph already in the collection. Also received were an extraordinary calligraphic manuscript, heightened with gold, by Valerio Spada, which was presented in 1653 to the Archduke Ferdinand Karl of Austria-Tyrol; an evocative red chalk pastoral scene by Piazzetta; a large biblical drawing by Giovannia Domenico Tiepolo; a red chalk head of a young woman by Greuze; and a large, romantic view of towers along the Rhine by Karl Bodmer. Finally, efforts to find later German drawings produced several, including a humorous Klee "portrait" of five dogs.

Purchases of prints included an impression of Goltzius's *Great Hercules* and a large ceiling design of *Venus Entrusting Cupid to Time*, by Domenico Tiepolo.

Among the outstanding gifts of prints were a monumental early woodcut by Kirchner, as well as his dynamic 1913 drypoint of a circus acrobat on a horse. Eighteen Whistler etchings and fifty-nine early twentieth-century American works, as well as twenty-six English drawings, were included in a large bequest. The Graphicstudio of the University of South Florida continued to add contemporary prints to their archives at the gallery. Among them were works in a variety of media by Chuck Close, Jim Dine, Robert Mapplethorpe, Philip Pearlstein, James Rosenquist, and Alfred Leslie.

Center for Advanced Study in the Visual Arts

During its eighth year, the Center for Advanced Study in the Visual Arts continued its programs of fellowships, meetings, publications, and research. There were six senior fellows, thirteen visiting senior fellows, two associates, and eleven predoctoral fellows for the 1987-88 academic year. The center convened series of seminars, symposia, colloquia, and lectures on various themes in the history, theory, and criticism of art, architecture, and

urbanism. "The Mall in Washington, 1791-1991" was a symposium that looked at the history of architecture and landscape architecture of the National Mall. Other symposia included "Urban Form and Meaning in South Asia: A Shaping of Cities from Prehistoric to Precolonial Times"; "New Perspectives in Early Greek Art"; and "Nationalism in the Arts."

There was a series of seminars devoted to "Italian Architecture in the Overseas Colonies"; "Psychoanalysis and Art History"; and "Cinema Studies, Artistic Practice, and Art History." Ten colloquia were presented to resident senior fellows over the year. The center also sponsored seven lectures by distinguished art historians, including Spiro Kostof (College of Environmental Design, University of California, Berkeley), Frederick Hartt (University of Virginia), Irving Lavin (School of Historical Studies, Institute for Advanced Study, Princeton University), Gert Schiff (Institute of Fine Arts, New York University), and David Bordwell (University of Wisconsin, Madison). Prince Richard, duke of Gloucester, spoke on the conservation of historic buildings and monuments in Britain.

As part of the publications program, this year saw the appearance of *Center 7*, the annual record of the scholarly events and research of the preceding year, and *Sponsored Research in the History of Art, 1986-1987 and 1987-1988*, a directory of art history research projects supported by granting institutions in the United States and abroad. Publication of the proceedings of center symposia in the gallery's *Studies in the History of Art* continued with volumes 19 and 21, *James McNeill Whistler: A Reexamination and Italian Metals*.

As another ongoing activity, the center developed relations with other scholarly institutions and strengthened communication with kindred organizations, both locally and nationally, through periodic meetings of the Association of Research Institutes in Art History, the Washington Collegium for the Humanities, and the Consortium of Washington Area Universities.

Library

With the library's acquisition of the Virginia Tech Library System, the gallery became the first art museum in the country to install a fully integrated, automated library system. Nine years of on-line cataloguing—representing approximately 60,000 titles—were transferred into the new system, and the availability of the forty-two terminals strategically located throughout the East Building will eventually eliminate the need for a labor-intensive central card catalogue.

Special Exhibitions

"A Century of Modern Sculpture: The Patsy and Raymond Nasher Collection." Continued from the previous fiscal year to February 15, 1988. Coordinated by Nan Rosenthal. Supported by Northern Telecom.

"William Merritt Chase: Summers at Shinnecock, 1891-1902." Continued from the previous fiscal year to November 29, 1987. Coordinated by Nicolai Cikovsky, Jr. Supported by Bell Atlantic.

"Berthe Morisot—Impressionist." Continued from the previous fiscal year to November 29, 1987. Coordinated by Charles F. Stuckey. Supported by Republic National Bank of New York and Banco Safra, S.A., Brazil, and the Federal Council on the Arts and the Humanities.

"Le Repos" (Portrait of Berthe Morisot). Continued from the previous fiscal year to November 29, 1987. Coordinated by Charles F. Stuckey.

"Rosso Fiorentino," Drawings, Prints, and Decorative Arts. October 25, 1987, to January 3, 1988. Coordinated by H. Diane Russell. Supported by the Federal Council on the Arts and the Humanities.

"Georgia O'Keeffe, 1887-1986." November 1, 1987, to February 21, 1988. Coordinated by Jack Cowart. Supported by Southwestern Bell Foundation.

"The Armand Hammer Collection: Eighteenth-Century Drawings." November 1, 1987, to April 17, 1988. Coordinated by Andrew Robison.

"An American Sampler: Folk Art from the Shelburne Museum." November 15, 1987, to April 14, 1988. Coordinated by Deborah Chotner. Supported by The New England.

"Master Prints: Selections from the Permanent Collection." November 22, 1987, to June 5, 1988. Coordinated by Margaret Grasselli.

On Loan from the U.S.S.R.: Titian's "St. Sebastian." December 6, 1987, to February 15, 1988. Coordinated by Sydney J. Freedberg. Supported by the Federal Council on the Arts and the Humanities.

"English Drawings and Watercolors, 1630-1850." December 13, 1987, to March 13, 1988. Coordinated by Andrew Robison.

Reading Is Fundamental, Inc.

Mrs. Elliot Richardson, Chairman
Ruth Graves, President

"Naive Visions: Antique Toys from the Shelburne Museum." December 20, 1987, to April 10, 1988. Coordinated by Laurie Weitzenkorn.

"The Human Figure in Early Greek Art." January 31 to June 12, 1988. Coordinated by D. Dodge Thompson. Supported by the Federal Council on the Arts and the Humanities.

"Sweden: A Royal Treasury, 1550-1700." April 12 to September 5, 1988. Coordinated by D. Dodge Thompson. Supported by The Boeing Company, the Federation of Swedish Industries, the Swedish Government, and the Federal Council on the Arts and the Humanities.

"Gauguin Drawings from the Armand Hammer Collection." May 1 to October 23, 1988. Coordinated by Judith Brodie.

"The Art of Paul Gauguin." May 1 to July 31, 1988. Coordinated by Charles S. Moffett. Supported by AT&T and the Federal Council on the Arts and the Humanities.

"The Flag Paintings of Childe Hassam." May 8 to July 17, 1988. Coordinated by Deborah Chotner. Supported by Bell Atlantic.

"Paintings by Fitz Hugh Lane." May 15 to September 8, 1988. Coordinated by John Wilmerding. Supported by GTE Corporation.

"Masterworks from Munich: 16th- to 18th-Century Paintings from the Alte Pinakothek." May 29 to September 5, 1988. Coordinated by Beverly Louise Brown. Supported by the German-American Cultural Fund, Inc., Lufthansa German Airlines, and the Federal Council on the Arts and the Humanities.

"Drawings on Stone: Early European Lithography." June 12 to September 4, 1988. Coordinated by Carlotta Owens. Supported by Maxwell Communication Corporation.

"Master Prints: Selections from the Permanent Collection." June 26 to December 31, 1988. Coordinated by Margaret Grasselli.

"Italian Renaissance Drawings." September 18 to December 31, 1988. Coordinated by Diane De Grazia.

Reading Is Fundamental, Inc. (RIF) was the inspiration of the late Margaret McNamara and a group of parents in inner-city Washington, D.C. Their goal when they started the first RIF project in 1966 was to enrich children's lives and motivate them to read by allowing them to choose and keep books they liked. For citizens who wanted to help children become readers, the RIF approach hit a responsive chord. Today RIF is a national, nonprofit literacy organization affiliated with the Smithsonian and supported by corporations, foundations, private citizens, and a federal contract. After more than two decades, the program has expanded into a nationwide network of grass roots projects in all fifty states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. During that time, RIF has put more than eighty-five million books into the hands of young people.

RIF projects can be found in more than 10,000 locations, including schools, libraries, community centers, housing projects, migrant labor camps, Indian reservations, and hospitals. Comments from school administrators, teachers, parents, and others indicate that, as a result of RIF, young people are reading more, their reading skills have been strengthened, and their attitudes toward reading have improved. Also frequently cited are increased library circulation and greater parent involvement in the children's reading and education. In addition to motivating young people to read, RIF offers workshops and publications to help parents encourage reading in the home.

1988 Highlights

This year a grant from the John D. and Catherine T. MacArthur Foundation enabled RIF to establish eight model programs to involve at-risk families in encouraging their children to read. Participating in the program are low-income Hispanic families in Washington, D.C., Albuquerque, New Mexico, and Chicago; teenaged mothers in Albuquerque and on Chicago's West Side; parents who work in textile mills in Surry County, North Carolina; and disadvantaged families in Bryan, Texas. RIF also joined the California Human Development Corporation and its nonprofit radio station in Salinas, California, in inaugurating a literacy radio broadcast in Spanish and English, reaching an estimated 133,000 listeners—many of them seasonal farm workers—in Monterey and Santa Cruz Counties.

Concern over illiteracy has prompted a number of businesses to support RIF's work. Among the many bene-



Youngsters and their books at a Reading Is Fundamental distribution in Arlington, Virginia. (Photograph by Rick Reinhard)

fit programs for RIF is a Golf and Tennis Tournament sponsored by Waldenbooks each September. The tournament attracts widespread participation and support from the book industry. Waldenbooks also arranged with Muppets creator Jim Henson to produce a poster to be sold in Waldenbooks stores; the proceeds will go to RIF.

For the third consecutive year, RIF was the beneficiary of a Clorox Company storewide promotion. This year the Jimmy Dean Meat Company announced a similar promotion called "Help Jimmy Dean and RIF Give Books to Kids." National ad campaigns are slated for both promotions.

In the four years since RIF started its Parent Services program, RIF has conducted thirty-one "Growing Up Reading" workshops for parents in cities nationwide. This year more than 1,300 parents took part in sessions covering a wide range of topics related to family reading. This series of workshops was underwritten by the General Electric Foundation and cosponsored by RIF projects in West Harlem, New York; St. Louis, Missouri; New Haven, Connecticut; Salt Lake City, Utah; Alexandria, Louisiana; and Pittsfield, Massachusetts.

Once again, hundreds of thousands of youngsters across the country participated in RIF's annual "In Cele-

bration of Reading" program, a campaign sponsored by the Metropolitan Life Foundation to encourage reading in the home. Through leisure-time reading, youngsters became eligible to enter a drawing to become "National RIF Reader." Both the RIF Reader and the winner of RIF's annual poster contest, sponsored for the third consecutive year by Hallmark, Inc., were awarded prizes and honored at a ceremony at the National Zoo.

Of all the reading events in which RIF has been involved, none has equaled the Summer of the Readasaurus in the breadth of its reach. This campaign to spur summertime reading was kicked off on May 3 at the National Zoo in a ceremony covered live on ABC's "Good Morning America." The program centered around a mythical dinosaur egg "discovered" on the North Slope of Alaska on April Fool's Day by two "paleontologists," Drs. Schmidt and Zonian. Children were urged to read during the summer months so that the Readasaurus twins inhabiting the egg would thrive. As a further incentive, youngsters aged five to twelve who read three books could enter their names in a drawing. Prizes included an IBM Writing to Read laboratory for the winner's school, a personal computer for the child, books and encyclopedia sets, and a trip to Washington.

The Summer of the Readasaurus was presented by RIF and ABC/PBS "Youth PLUS," administered by Read America/Win America, and sponsored by IBM Writing to Read. Program partners included the Smithsonian Institution, the U.S. Postal Service, the Center for the Book at the Library of Congress, and a number of organizations and businesses.

Barron's Educational Series, in partnership with Reading Is Fundamental, sponsored a scholarship competition this year for RIF youngsters in grades 6 through 12. The program was launched on April 27 with a "RIFnic" held at Hofstra University in Hempstead, New York, for RIF children from the Bronx, Queens, and Long Island. Two winners, chosen in a random drawing, each received a \$10,000 college scholarship.

The *Orlando Sentinel* joined forces with RIF to launch Reading Roundup, a campaign described by RIF chairman Mrs. Elliot Richardson as "the single largest effort by a newspaper to bring RIF books and reading to youngsters." The roundup serves more than 20,000 central Florida fifth graders, who are at a critical age for reinforcing interest in reading.

In September 1988 RIF joined community leaders and literacy groups in Chattanooga, Tennessee, in initiating "City of Readers," a year-long literacy program receiving financial support from the General Electric Foundation.

RIF president Ruth Graves commented on the program's goals: "With many smokestack industries in the area being replaced by high-tech manufacturing, a community-wide reading initiative has practical appeal. 'City of Readers' can be a way to promote Chattanooga's commitment to education and at the same time address the long-term need of business and industry for a literate work force."

In 1988 RIF added several new titles to its list of publications, including *Magazines and Family Reading*, the eighth in the series of "Parent Guide" brochures. RIF also produced a new technical assistance manual for RIF volunteers. The acclaimed *RIF Guide to Encouraging Young Readers*, published by Doubleday in 1987, was issued as a Book-of-the-Month Club members' premium.

Woodrow Wilson International Center for Scholars

Charles Blitzer, Director

The Woodrow Wilson International Center for Scholars is a presidential memorial that fosters scholarship and dialogue in the humanities and the social sciences. By bringing fellows from around the world to Washington, D.C. encouraging discourse among disciplines and professions, and publishing the results of these activities, the center enriches the quality of knowledge and debate in the Nation's capital and throughout the world.

The Wilson Center, established by legislation within the Smithsonian Institution, has an independent board of trustees and administration. The board is composed of citizen members, appointed by the President; seven government officials who serve by statute; and an additional representative from government appointed by the President. William Baroody, Jr., serves as chairman of the board and Robert Mosbacher as vice chairman. Don W. Wilson joined the board this year as a government representative after his appointment as Archivist of the United States.

When James Baker submitted his resignation as Secretary of the Treasury this year, the Wilson Center's board lost a valued and distinguished member. Mr. Baker had served for eleven years, first as a private citizen and, most recently, as the member from government designated by the President. The value of his advice and leadership will long enrich the center.

The Wilson Council, a group of private citizens who advise and support the center, provided extraordinary service during the year. Thanks in large part to the generosity and hard work of council members, the center was able to match successfully a special endowment challenge from the Congress. Council members also continued to assist in the development of the center's Patrons Program.

Two distinguished leaders departed the center this year. James Billington, director for fourteen years, became Librarian of Congress just before the year began. Prosser Gifford, deputy director, served as acting director for much of the year and went on administrative leave in the spring.

In March the board of trustees announced the appointment of Charles Blitzer as director of the Wilson Center. Dr. Blitzer, director of the National Humanities Center from 1983 to 1988 and assistant secretary for history and art at the Smithsonian from 1968 to 1983, assumed his new duties on June 1. He appointed Samuel F. Wells, Jr., as deputy director and Jon E. Yellin as associate director.

Fellows

At the heart of the Wilson Center enterprise are the Fellows, who are selected through an annual international competition. They bring to Washington fresh insights on the historical, cultural, and political issues they are studying. This year seventy-one fellows and guest scholars from twenty-six countries were in residence at the Wilson Center for varying periods.

Fellows select their own research projects. Among the subjects studied this year were the imagination of chaos; taxation and social choice in the United States; the character of Ivan the Terrible; and legitimacy and the problems of representation and democracy in Latin America. Other projects included studies of Islamic fundamentalism in Asia; Israel's competing grand strategies; national identity and state power in modern Romania; and historical ethnography in European family life since 1800 through the study of festivals and special occasions.

Programs and Meetings

Each Fellow and Guest Scholar is associated with one of the center's eight programs—American Society and Politics; Asian; East European; History, Culture, and Society; International Security Studies; Kennan Institute for Advanced Russian Studies; Latin American; and West European. The programs provide the structure for the center's active schedule of meetings. These gatherings might be informal lunchtime discussions of a Fellow's research, dinner sessions with formal presentations and informal dialogue, or major international conferences. All of the gatherings are distinguished by the tradition of bringing together people who differ in discipline, profession, and nationality, but who share an interest in a subject and in having their views challenged in often-vigorous debate.

The programs of the Wilson Center sponsored several major conferences during the year. These ranged from a meeting on "Collections and Culture: Museums and the Development of American Life and Thought" to "Human Rights in Cross-Cultural Perspective," "The Gorbachev Reform Program: Its Impact on Soviet and East European Policies," and "Italy: Political, Social, and Economic Change Since 1945." Other meetings included "Ideology

and Self-Image: East European Intellectuals and the Present and Post-War Crises," "Defining Industrial Democracy: Work Relations in 20th Century America," "Democratizing Economics in Latin America," and "Perspectives on the American Study of Contemporary China."

Members of Congress drew on the expertise of Wilson Center staff and fellows during the 1988 "Congressional Breakfast" briefings and discussions. By sponsoring meetings at the Capitol with key senators and representatives and their staffs, the center aims to place contemporary policy issues within a larger historical and cultural framework. The year's meetings addressed Islamic fundamentalism in Africa, prospects for Soviet economic and cultural reforms, and Greek and Turkish relations within the NATO alliance.

Publishing and Outreach

The center's publishing office, launched last year, conducted a full program in 1988. Through numerous publications, the results of meetings at the center were made available to a broad public. Published works in 1988 included four books from the Wilson Center Press that proved especially timely and relevant in the world of international relations: *Haiti's Future: Views of Twelve Haitian Leaders*; *Solidarity and Poland: Impacts East and West*; *Yugoslavia: A Fractured Federalism*; and *Burma: A Study Guide*. A fifth title, in press as the fiscal year closed, was *American Media: The Wilson Quarterly Reader*, which offers valuable insights into the ways the "fourth estate" affects our lives.

Research conducted by former scholars at the center resulted in the publication of several books this year. These included *Highbrow/Lowbrow: The Emergence of Cultural Hierarchy in America*, by Lawrence Levine (Harvard University Press); *Threshold of War: Franklin D. Roosevelt and American Entry into World War II*, by Waldo Heinrichs (Oxford University Press); *Songs of the Saints of India*, translated by Mark Juergensmeyer, co-translated with J. W. Hawley (Oxford University Press); and *The Limited Partnership: Europe, the United States, and the Burdens of Alliance*, by Josef Joffe (Ballinger Publishing Company).

The *Wilson Quarterly*, in its twelfth year, combines a

scholarly approach with an editorial format aimed at a general audience. Aided by the resources available at the Wilson Center, the *WQ* explored a variety of topics, ranging from Nicaragua to social mobility to the evolution of American music. This year, for the first time, *Wilson Quarterly* subscribers became members of the Wilson Center Associates. Membership benefits include certain Wilson Center publications and conference reports, as well as benefits from the Smithsonian.

<p>Under Separate Boards of Trustees</p> <p>John F. Kennedy Center for the Performing Arts</p> <p>National Gallery of Art</p> <p>Woodrow Wilson International Center for Scholars</p> <p>Reading Is Fundamental</p>	<p>BOARD OF REGENTS</p> <p>SECRETARIAT* — THE SECRETARY*</p> <p>Office of — UNDER SECRETARY*</p> <p>AUDITS AND INVESTIGATIONS</p>
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*Secretary's Management Committee

**The assistant secretaries for research and museums collaborate in the oversight of scholarly and presentational activities in these bureaus and offices

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Cover: Detail of a Chilkat tunic of the Tlingit people, on view in the exhibition *Crossroads of Continents: Cultures of Siberia and Alaska*. (Photograph by Staff, Office of Printing and Photographic Services)

Frontispiece: Jalalu-Kalvert Nelson performs at a free concert in the Cooper-Hewitt's Carnegie Garden, June 21, 1988, organized in conjunction with Artists and Audiences Program of the New York Foundation for the Arts.
(Photograph by Susan Yelavich)

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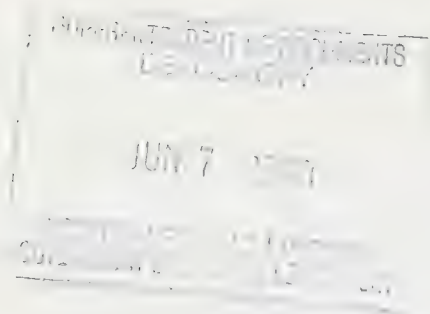


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1989

Smithsonian Year 1989





Smithsonian Year 1989

Annual Report of the Smithsonian Institution for the Year Ended September 30, 1989



Young museumgoers experiment with a mirror kaleidoscope that is part of the SITES traveling exhibition, "Kaleidoscopes: Reflections of Science and Art." (Photograph by Robert Jordan)

Contents

Smithsonian Institution 7
Statement by the Secretary 9
Report of the Board of Regents 32
Benefactors 34
Financial Report 41

Research

International Center 68
Joseph Henry Papers 71
National Zoological Park 72
Office of American Studies 76
Office of Fellowships and Grants 77
Smithsonian Astrophysical Observatory 79
Smithsonian Environmental Research Center 84
Smithsonian Institution Archives 86
Smithsonian Institution Libraries 90
Smithsonian Tropical Research Institute 93

Museums

Anacostia Museum 100
Archives of American Art 102
Arthur M. Sackler Gallery 103
Conservation Analytical Laboratory 105
Cooper-Hewitt Museum 107
Freer Gallery of Art 111
Hirshhorn Museum and Sculpture Garden 112
National Air and Space Museum 114
National Museum of African Art 118
National Museum of American Art 122
National Museum of American History 125
National Museum of Natural History/National Museum
of Man 131
National Portrait Gallery 135
Office of Exhibits Central 138
Office of Horticulture 139
Office of Museum Programs 140
Office of the Registrar 141
Smithsonian Institution Traveling Exhibition Service 141

Public Service

National Demonstration Laboratory for Interactive
Educational Technologies 146
National Science Resources Center 146
Office of Elementary and Secondary Education 147
Office of Folklife Programs 148
Office of Interdisciplinary Studies 151
Office of Public Affairs 153

Office of Telecommunications 154
Smithsonian Institution Press 156
Smithsonian Internship Council 158
Smithsonian Magazine 158
"Smithsonian World" 159
Visitor Information and Associates' Reception Center 160
University of the Air 161

External Affairs

Office of Membership and Development 164
Women's Committee of the Smithsonian Associates 167
Smithsonian National Associate Program 168
Smithsonian Resident Associate Program 171
Office of Special Events 176
Office of Congressional Liaison 176

Administration

Administrative and Support Activities 178
Smithsonian Institution Women's Council 181

Under Separate Boards of Trustees

John F. Kennedy Center for the Performing Arts 184
National Gallery of Art 188
Reading Is Fundamental, Inc. 194
Woodrow Wilson International Center for Scholars 196

Organization Chart 198

Smithsonian Year 1989 Supplement, containing the Chronology and Appendixes 1-8, is published in a microfiche edition of photomechanically reproduced typescript provided by the individual bureaus and offices of the Smithsonian Institution. The appendix contents are as follows:

Appendix 1. Members of the Smithsonian Councils, Boards, and Commissions

Appendix 2. Visitors to Smithsonian Institution Museums

Appendix 3. Academic, Research Training, and Internship Appointments

Appendix 4. Publications of the Smithsonian Institution Press

Appendix 5. Publications of the Staff of the Smithsonian Institution

Appendix 6. The Smithsonian Institution and Its Subsidiaries (*staff lists*)

Appendix 7. Donors to the Smithsonian Institution

Appendix 8. Contributing Members of the Smithsonian Institution

Please address requests for copies of the microfiche edition of the *Supplement* to

Alan Burchell, Production Coordinator

Smithsonian Institution Press

470 L'Enfant Plaza, Suite 7100

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SMITHSONIAN INSTITUTION

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." After receiving the property and accepting the trust, Congress incorporated the Institution in an "establishment," whose statutory members are the President, the Vice President, the Chief Justice, and the heads of the executive departments, and vested responsibility for administering the trust in the Smithsonian Board of Regents.

The Establishment, September 30, 1989

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Board of Regents and Secretary

September 30, 1989

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Statement by the Secretary

Robert McC. Adams

In a narrowly budgetary sense, these are unquestionably difficult and uncertain times for the Smithsonian. The maintenance of what is called a “current services” budget—freezing growth in most respects, while accommodating some but not all of our unavoidable increases in costs—is about the best the Institution can look forward to for several years ahead. Planning, meanwhile, is hampered by divergent assumptions about the trends of future federal budgets, not only between the administration and the Congress but within the Congress itself.

Yet at the same time, in some respects contradicting in our own case the apparently negative message of these reduc-

tions, we find ourselves celebrating the enactment of a bill authorizing the establishment of a new National Museum of the American Indian, and also receiving strong encouragement from the administration to develop new research initiatives on global change and biodiversity. For all the generalized gloom in Washington over the programmatic impacts of the deficit, for all the confusing signals over long-term trends, both the core of the Smithsonian’s work and our important and exciting new initiatives continue to meet with solid encouragement.

The difficult course we have chosen to follow, in other words, involves not brushing aside as unthinkable the possi-



Secretary Robert McCormick Adams signs the Memorandum of Understanding with the Museum of the American Indian, Heye Foundation, which will transfer its superb collection of American Indian artifacts to the Smithsonian Institution. The signing ceremony on May 8, 1989, overlooking the site of the planned new National Museum of the American Indian, was attended by (left to right) Suzan Harjo, member, Board of Trustees, Museum of the American Indian, Heye Foundation, New York City; Roland Force, director, Museum of the American Indian; Senator Daniel K. Inouye (D.-Hawaii), principal supporter of legislation to create the National Museum of the American Indian within the Smithsonian Institution; Dick Baker, member of the Lakota Sioux Red Feather Society, who offered a prayer for the success of the museum; and Congressman Ben Nighthorse Campbell (D.-Colorado), the only American Indian member of Congress. (Photograph by Laurie Minor)

bility of future retrenchment in some of our programs, while also not concluding that this is a time to retreat into a diminished but more defensible citadel. As open as ever before us is an opportunity to revitalize the core of our activities while still seeking to develop new realms of popular as well as scholarly significance.

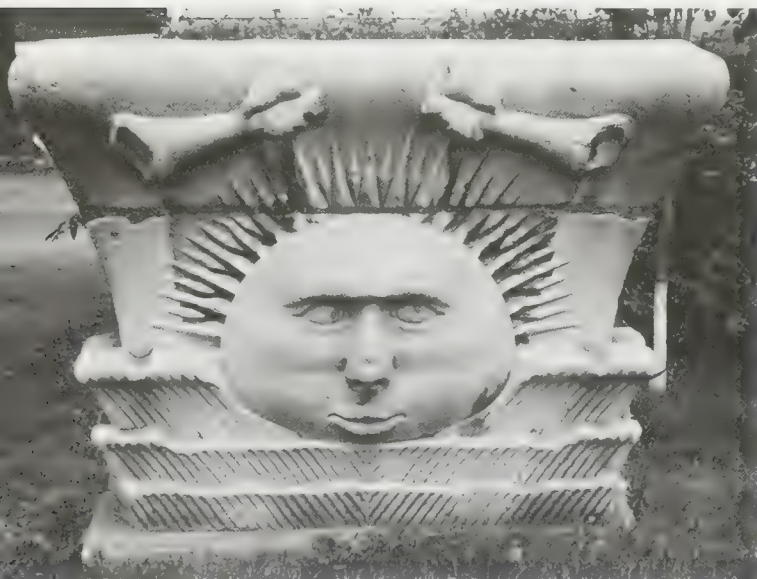
Considered as a whole, the record of our growth in resources and scale of activities across several recent decades must be virtually unmatched. This record argues for consistent and widespread support, in the administration, the Congress, and the public alike. But it is also interesting to note that, in real dollar terms, our federal appropriations have been decidedly “sticky” in their upward movement. They exhibit a tendency to stay on a plateau, merely matching the rate of inflation, until major projects come along like the Quadrangle and the new American Indian Museum that command wide enthusiasm. Only then has the support materialized allowing the budget to be readjusted upward, establishing a new base. When important new initiatives are undertaken, in other words, it has proved possible to enlarge the size of the pie that is to be cut up

among our various activities, rather than just to add another pie-consumer and leave every share a little smaller.

Another, equally important lesson from taking a longer-term look at trends affecting the resource base of the Institution is that the income to the Institution on the private or “trust” side of its budget has grown at a substantially faster and steadier rate than the federal appropriation. I do not believe we have more than begun to attain our potential in this respect. Hence there can be enormous returns to the basic health of our core activities, and to our ability to launch ambitious new undertakings and plan confidently for their full success, if we move deliberately toward a greatly expanded and diversified program of private fund-raising. That is exactly what we propose to do, both on behalf of the Institution as a whole and on behalf of its individual bureaus and offices.

A preoccupation with budgetary issues like those with which I have begun is unavoidable when, as currently, they threaten to dictate a number of unpleasant decisions about the aggregate scale of our activities, and perhaps even about the survival of some of our programs. Having completed my first five years as secretary, however, I hope I may be excused for regarding this annual report as something of a milestone calling for an appraisal extending far beyond matters of finance. What follows is an essentially personal view—although obviously drawing heavily on the (by no means always concordant!) views of many colleagues on the senior staff and administration of the Institution—of the directions the Smithsonian is taking, the principles governing the choices we face, and the world context within which our actions must be measured.

Many different forces and priorities obviously converge to influence our actions and choices. If it were ever possible for the Institution to go its own way at a pace of strictly its own choosing, that time is long past. However, this is certainly not to imply that we are helplessly adrift in chaotic cross-currents, with no alternative but to move at the discretion of the strongest tide. To the contrary, the substantial degree of deliberate consistency in the Institution’s programs probably has strengthened popular support for them. As I propose to describe in detail, we can call upon strong and coherent rationales as we seek to adjust those programs to new circumstances. Fulfilling our mission, especially in difficult and uncertain times, in fact seems to require that we maintain a proactive, creatively selective and opportunity-seeking, outward-looking stance rather than a defensive, passive, or self-enclosed one.



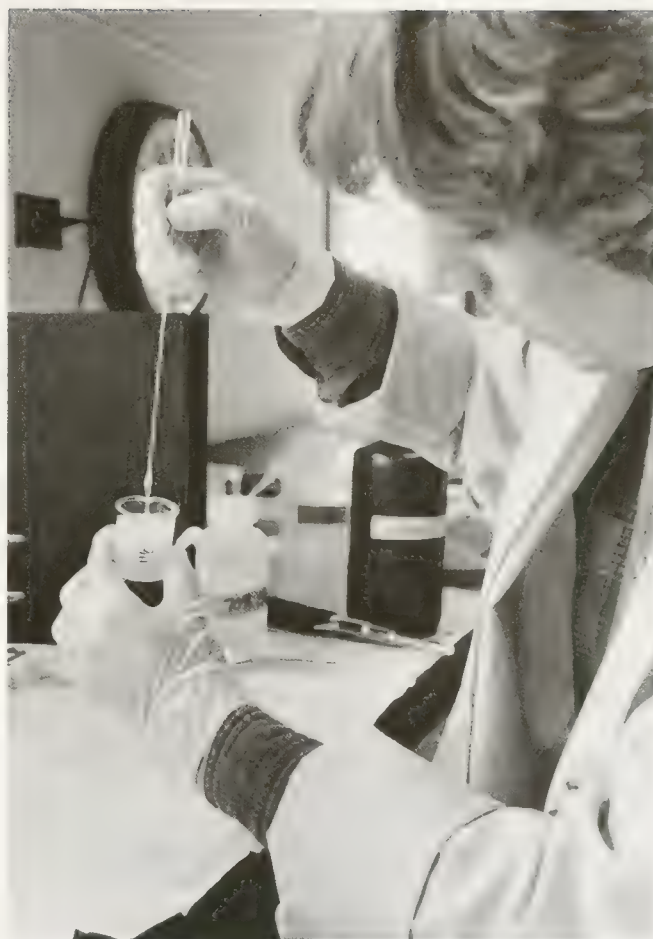
This pilaster capital, weighing two-and-one-half tons and known as The Sunstone, was originally part of the Mormon temple constructed in 1846 in Nauvoo, Illinois. Its acquisition by the National Museum of American History was made possible by a grant from the Collections Acquisition Program.

Epochal events of the current year in China, the USSR, Eastern Europe, and southern Africa provide a remarkable setting, I believe, for our own stocktaking and direction-setting. Unfolding before our eyes has been a wide, often sudden, and seemingly almost unplanned, array of extraordinary institutional changes. Some of them have genuinely empowered and facilitated the forces of reform, others merely recognized and legitimated them, and still others are patently attempting at least temporarily to stifle the massive, spontaneous movements toward human rights and democratization. What better background could there be for our own consideration of the interplay between structure and function, vision and reality, in this institutional setting? I only hope that most of the steps being taken at the Smithsonian will be seen as encouraging and facilitating, rather than falling toward the stagnating or suppressing end of the continuum.

There is an additional, special meaning for us in the still accelerating developments across the vast arc from the Berlin Wall to the Sea of Japan. They signal a worldwide reemergence of broadly shared human values and aspirations. This Institution's measures in support of many of the same ends may look quite minor alongside those epochal changes. But the immense reawakening they imply infuses us with the recognition that we are not—or at least, need not be—isolated. Other developments much nearer at hand—as close as the absence of a racially dictated outcome in the recent gubernatorial election in the adjacent, former cradle of the confederacy—carry the same message. It reestablishes the climate of hope and thought in which the Smithsonian was itself first envisioned.

I have in mind, of course, the commitment in our charter to the “increase and diffusion of knowledge.” It reflects a striking degree of confidence on the part of our founders in the unqualified and endlessly contributive potential of knowledge for human life—in its power to sweep across changing contexts of time, historical consciousness, and ethnic and national differences. There have been many dark and uncertain years when that confidence at times may have seemed obsolescent or misplaced. But now, once again, it is gathering force as a doctrine to live by.

What does the Smithsonian stand for *today*? My own list begins with general qualities, transcending any particular activities or collections. First, and to the surprise of some, the Institution makes no claim for the comprehensiveness of the knowledge increased and communicated. It is a vain hope to be all-embracing, and even to set that as a distant goal would



Dr. Judy Blake works on a DNA sample in the National Museum of Natural History's new Molecular Systematics Laboratory. The laboratory became fully operational in 1989, making possible biochemical and molecular genetic studies of DNA and proteins useful in resolving questions about the natural and evolutionary biology of organisms. (Photograph by Doc Dougherty)

be needlessly and wastefully duplicative of many other great research institutions and universities. University programs extend (as ours do not) into all fields of history, across the full sweep of the social sciences and humanities, into the heart of the epoch-making revolution in suborganismic biology, and along the full length of the theoretical and experimental frontiers of the mathematical and physical sciences. Ours, by contrast, have grown less by design than by an accretion of external influences.

To mention only a few of these influences, they include

the Institution's availability as a research organ and repository in connection with our nation's westward expansion; the lasting involvement in astronomy that probably can be traced to the personal interests of John Quincy Adams; and the public's sense of identification with the triumphs of the epoch of American industrial growth, and, more recently, with our unparalleled achievements in air and space. There are, of course, many others. We can take satisfaction in this evidence of the Institution's responsiveness to broad tides of national concern. But let us not pretend that our programs are, or ever have been, continuously pruned and shaped on the basis of exclusively "internal," scholarly criteria. They are products of a living institution, actively engaged on many fronts and committed to public service and public dialogue. It would be unwise to offer the further defense that they are also models of some pristine inner symmetry or rationality.

Second, we must not forget that our great collections are the primary source of the Smithsonian's strength and reputation. We hold them as a national trust to be passed on to succeeding generations. Their custody, study, exhibition, and publication thus are always a primary responsibility. That applies as well to closely related support activities that may be virtually invisible to most of the public but that are essential for the collections to be made fully accessible and serviceable: comprehensive, machine-readable cataloging; object and specimen conservation; and the archiving of relevant documents. Equally invisible and vital are the provisions for repair and rehabilitation of our aging buildings, into which we have recently found it necessary to triple our annual investment. Fortunately, we can point to one decidedly visible affirmation of this responsibility, our new Museum Support Center in Suitland, Maryland, that is also a state-of-the-art facility for carrying it out. But in any case, all those involved with collections are aware that collections continue to grow, that standards can only move forward, and that new demands on collections multiply endlessly. It takes a grueling struggle merely not to fall further behind.

Here I have slipped in an additional, no less central responsibility associated with collections: their augmentation. It is not a fixed principle of the Smithsonian that collections can only grow and will never be allowed to shrink. We do, in fact, practice selective deaccessioning in a number of areas, permitting a strengthening of the collections in other directions through further acquisitions. But more important, our view is properly directed toward augmenting the role and stature of the Institution over the very long term through its collections. Thus there is nothing

fixed about the present extent of its coverage. With due consideration for issues of cost, available staff expertise, endangerment of some important cultural or natural resource, areas of growing public interest or concern, and our own comparative advantage, the Smithsonian frankly exists to step forward when a sufficiently compelling need or opportunity offers itself. The extraordinary Heye Foundation collection that will shortly come to the Mall, and thus finally to the world public it richly deserves, from the Museum of the American Indian in New York, is only the latest and most salient example of this principle at work.

As the Smithsonian is in large part collections-based, it is only natural that at least the museum research carried on here is predominantly empiricist, almost phenomenological in character. But there is nothing intentionally uniform about the scholarly approaches taken. In this as in so many other respects, breadth and diversity are sources of strength and renewed vitality. Sometimes it is entirely appropriate to let objects in our collections speak for themselves, or merely rely upon description with a minimum of interpretation. But at other times, and no less frequently, we need to come out from behind the cover of this apparent noninvolvement and declare a thematic or programmatic perspective to what we do. After all, as no less redoubtable an authority than Charles Darwin once wrote, all knowledge must be for or against some view if it is to be of any significance.

Third, as this suggests, the Smithsonian has always prized a vigorously independent expression of views and choice of research initiatives by its professional staff. No other stance is consistent with the encouragement of creativity and the pursuit of excellence. Hence those of us in positions of administrative responsibility on the whole have consciously avoided imposing any pattern of uniformity we happened to favor. We must recognize that this is of critical importance for the long-term scholarly strength of the Institution, even while also believing that it can involve real and immediate costs for some of the Smithsonian's broader programmatic interests.

The difficulties arise from our simultaneous need to set pan-Institutional directions or priorities. It is obvious, to consider first the setting of our research strategies, that we must take into account the Smithsonian's comparative advantages if we are to fulfill our mandate. That involves complementing rather than duplicating programs elsewhere, as for example by fully utilizing our potential for long-term research commitments. In certain circumstances, maintaining this advantage could imply preserving programs that



First Lady Barbara Bush, assisted by Zoo Director Michael H. Robinson, cuts the centennial birthday cake. (Photograph by Jessie Cohen,

some staff members believe no longer provide optimal research opportunities for them personally. Conversely, a pan-Institutional view may suggest that some program, while still actively engaging staff participants, has declined markedly in productivity or is slipping into scientific obsolescence.

Certainly no action should be taken in cases like these without extensive internal and external review and consultation. But occasionally it has fallen to a secretary to make a decision based on these larger considerations even in the face of some staff opposition, and it will again. Broad research directions cannot always be set through an exclusively bottom-up process. I must insist on this in the "buck stops here" tradition, even though doing so may seem inconsistent with my earlier principle that our research efforts generally depend for their creativity and excellence on the maximal freedom of action of those knowledge-based specialists immediately involved in them.

Other potential costs of our encouragement of the independence of the individual curator or investigator are connected not only with increasing knowledge but with diffusing it—through our exhibitions, educational activities, outreach efforts, and public programs generally. Salient public goals of the Institution seldom can be seriously pursued without broad and concerted staff efforts. A limiting side effect of respect for individual autonomy may be a skewing, blurring, or slowing of our ability to respond on a major set of issues.

But in the end, it is at least my own strong conviction that there is no valid way of avoiding this continuing state of tension between advancing pan-Institutional priorities and preserving as much individual freedom of action as possible. This tension need not be antagonistic. Recognition of the integrity and complementarity of each of these elements of the Institution can lead to productive exchange, debate, and compromise. What we must emphasize is finding ways to create positive inducements that will encourage but not compel the choice of common courses of action—that will strive to move us forward on larger commitments in an atmosphere of consensus.

The need for a sensitive balancing of programmatic priorities against the maximal encouragement of individual choices and opportunities has been raised as if it were of primary concern to the Smithsonian's professional staff. After all, this is the level at which programmatic initiatives or modifications generally begin. But I hasten to add that our professionals are not a fixed group with unique rights and privileges, surrounded by an insurmountable wall! We are determined to make the whole staff of the Smithsonian, and in particular its professional ranks and senior administration, more representative of the multiracial, multiethnic society from which it is drawn. That involves intensified efforts to widen the pools from which our staff is recruited, even if the stabilization of staff size under budgetary pressures means that progress

toward correcting present, unacceptable imbalances will be slow. It also involves improved training and advancement programs, one of them just beginning, that will encourage employees at lower levels to move steadily ahead and prepare themselves to enter professional or administrative ranks. With their breadth of representation, the several cultural councils at the Smithsonian that are now in place should be very helpful in making these programs more effective, and in linking them to other programmatic initiatives.

Fourth, we come to the place of salient, public goals in our program. Before dealing in more detail with the two that are most important, let me offer a single, inclusive formulation that covers both of them. Recalling that the objectives of any living institution must shift, and that those of the Smithsonian have usually come to the fore as a result of externally recognized needs and opportunities, I will certainly not hazard a prediction that these two will never be superseded. Given any balanced characterization of trends in national and world conditions to which we must be responsive, however, I believe that *an overarching concern for preserving and articulating our cultural and natural heritage* is likely to remain the Smithsonian's highest responsibility for a good many years to come.

Consider first our cultural heritage. A cultural map, whether of our nation or of the world, has little to do with administrative or geopolitical borders. It is never static, and ideally should be able to record massive, continuing flows and growing interdependencies. Under the homogenizing influence of the mass media, and particularly television, a worldwide change in cultural values, often accompanied by erosion of cultural diversity, and complexity is proceeding rapidly. Also frequently brought to bear to accelerate the destructive aspects of this process is all the authority of national institutions and elites. The usual, almost inevitable, consequence for those designated as "minorities" is negative stereotyping, alienation, or exclusion from participatory structures of governance and social interaction, and multiple forms of educational and economic deprivation.

The Smithsonian is to be included among national institutions, to be sure, but it is like no other. It is here to serve all segments of our population, and to address a world audience. It cannot escape the responsibility to speak to and for that entire population and audience. This requires that we be at pains neither to idealize and reify the purported "mainstream" of global as well as our national culture, when so many are still denied access to it, nor to place

"nonmainstream" cultures under an idealized bell jar that freezes them in time.

Exemplifying this stance are the outstanding television series, exhibitions, and other activities we plan for 1992 and later years, commemorating the Quincentenary of the arrival of Columbus in the New World. It is designed, in the first instance, to intensify our awareness of the hemispheric context in which the United States arose as a nation, and whose contributions to our own economic growth and cultural diversity we still recognize only dimly through a screen of our own national preoccupations and stereotypes. There is a significant shift of emphasis here, in no sense denying the initiating act of "discovery" by an intrepid navigator but focusing instead on the vast, prolonged, and absolutely unprecedented encounter between streams of civilization that previously had been absolutely unaware of one another. Implicit in the substitution of the word "encounter" for "discovery," as historian Alfred Crosby has noted, are "connotations of equality between the participants, unpredictable results, and, quite possibly, of injurious collision." He goes on to observe:

The rapidity and magnitude of change in our century has prepared us to ask new questions about history and, specifically, about the Encounter of Amerindians, Europeans and Africans. I think ours are better questions than were asked a century ago, simply because we are equipped by our twentieth-century lifetimes to see and recognize changes as great as those that the Encounter unquestionably did cause. . . .

The significance of the Encounter towers above the origins of this or that kind of government or even the fate of this or that group of humans. The Encounter marks one of the major discontinuities in the course of life on this planet. The measuring of its influence requires reference to a scale of time far greater than historians or archaeologists normally consult, that is, reference to the "deep time" discovered by the great geologists, biologists, and thinkers of the eighteenth and nineteenth centuries. To find changes comparable to those wrought by Columbus and friends we have to go back beyond recorded time to the divisions between the periods of geological history. These were characterized by great geological changes—the meeting or separation of continents, the rising up of mountains, the draining or filling of inland seas—and sometimes by large numbers of extinctions and the proliferation of new species. ("Reassessing 1492," *American Quarterly* 41 [1989], 661–69)

In embracing this more comprehensive, culturally sensitive view we are also driven to reconsider fundamentally the purpose and potential scope of at least some of the museum activities through which the Smithsonian has traditionally



Wang Yani, a fourteen-year-old Chinese artist, demonstrates her painting at the press preview of her exhibition at the Sackler Gallery, "Yani: The Brush of Innocence," on June 20. (Photograph by Jeff Crespi)

addressed a world audience. Museums, it will be recalled, began a few centuries ago as cabinets of curiosities—jumbled assemblages of what caught a princely collector's fancy and were shown to favored visitors only at his discretion. As museums went on to become national collections, they took on a more systematic character. But all too often they have continued to impose from above a vision of a glorious past that was like our melting-pot myth: focused on symbols and icons that someone in charge proclaimed to be all-embracing and unifying but that were in fact all too often partisan and exclusionary.

A legislative step taken last year in Canada sets a new direction that may provide a good example for us. It was declared thenceforth to be a matter of national policy there to "recognize and promote the understanding that multiculturalism reflects the cultural and racial diversity of Canadian society . . . [and is] a fundamental characteristic of the Canadian heritage and identity." No less than Canada, ours is also a pluralistic country for which it would be timely to discard myths to the contrary. "The point about the melting pot," as Nathan Glazer and Patrick Moynihan tartly observed already a generation ago, "is that it did not happen." If there is some reason to remain in a gustatory framework, perhaps this particular bit of symbolism should be replaced by that of a salad bowl, in which separate ingredients create a new composite while yet retaining their independent taste.

We need to recognize further that our society is still marred by striking inequalities in opportunity, and by the persistence of racial, ethnic, and gender stereotypes that museums can play an important part in dispelling. Toward that end, the Smithsonian must accept the obligation and act upon it urgently, so that our staff and advisory boards will

more adequately represent our scholarly and public communities in all their diversity. Equally pressing is the need to rethink and redirect our existing forms of popular education and outreach in a more comprehensively inclusive manner. And fundamental to the success of both these efforts is a recognition that knowledge is multiplex. That means it can best be advanced and diffused in a mode of sharing through broad collegial collaboration and public dialogue, rather than held aloof as the province of specialists. In everything we exhibit, publish, or otherwise disseminate, in other words, the Smithsonian must strive for sensitivity to the conditions, needs, and aspirations of the multiple and growing audiences it has an obligation to reach.

This is the primary context in which to view the Smithsonian's new project to develop a National Museum of the American Indian, now unanimously passed by the Congress and signed into law by President George Bush. Nothing could be more appropriate, I believe, than for the first Americans to be at the head and heart of the effort to research, interpret, and celebrate the diverse cultural experiences that go to make up this nation—for their museum to become a flagship of hemispheric cultural diversity. I emphasize that this will be, to an unprecedented extent, *their* museum: under Native American leadership, devoted not to the timeless past of Hollywood (and, too often, also school textbook) myth making but to the full range of intellectual, artistic, and cultural achievements of a living people, pulsing with the diversity of belief and material expression within their own number, and speaking to the world in their own voices of their hopes and tragedies and permanent place in the family of humanity.

If we succeed in realizing this dream there will be no turning back from the unique position of leadership in



Researchers from the Smithsonian Tropical Research Institute in Panama take the measure of a tree on Barro Colorado Island in a long-term study of the diversity of tropical forests. (Photograph by Carl Hansen)

conserving and celebrating cultural diversity that the Smithsonian will then occupy among national institutions. The model is one that, with variations still under discussion and the timetable for enactment into law accordingly uncertain, should presently be extended to African American culture and history. Subsequently it may well be taken up by Hispanic Americans and other groups as well, and I hope and expect it will also be found relevant in other countries. It comes as no surprise that, in spite of the freezing or retrenchment of numerous programs as a result of federal government deficits, the president's Office of Management and Budget has directed us to move ahead on this extraordinary opportunity.

Note should be taken of a special feature of planning for the National Museum of the American Indian that also has figured prominently in our discussions of improvements in the Smithsonian's African American programming. In a word, it is a new emphasis on *networking*. The Indian legislation envisions training programs here that will eventually go well beyond filling our own needs for ethnohistorians, curators, archivists, conservators, exhibition specialists, and the like for the new museum, and that will help to provide staffs for growing numbers of smaller museums in tribal centers and pueblos all across the country. Our capabilities for mounting and circulating traveling collections, based on our unsurpassed holdings of Native American materials, will have to grow accordingly. The African American case is different in detail, and yet generically similar. It is simply unthinkable that we should plunge ahead in this field toward major new collecting capabilities, facilities, or programs of any kind without taking into account the needs and potentialities of the African American Museum Association that already exists with about a hundred member organizations. Taken together, these two examples set a direction toward a dominant form of outreach for the Institution during the years ahead.

Fifth, let us turn to the Institution's contribution to monitoring, understanding, and moving to arrest the many interacting aspects of deterioration of the global environment. It has been widely observed that some of these processes, originally more controllable because they were localized and hence partly isolated from one another, are now spreading and ominously converging to suggest the onset of a deep-seated and intractable crisis. Intergovernmental means of coping with them have been slow to develop beyond the discussion stage, and the measures currently planned seem to be of very limited and questionable effec-

tiveness. How could we not regard this as a crucial focus of Smithsonian effort, given our long tradition as a world center of research in natural history and our concentration of expertise in many of the relevant fields?

Several daunting features characterize this problem, and have compelled us to consider carefully where our comparative advantages as an institution direct us to place our primary attention. One aspect of this problem is its enormous scale and complexity, dictating scientific efforts of unprecedented size that call upon the collaborative as well as interdisciplinary efforts of specialists in many countries. Another is the very incomplete understanding of positive and negative feedbacks—of nonlinear interactions, possibly both serious and sudden, when multiple, primary parameters of change interact with one another. Still another is the inadequate base of fine-grained, and especially longitudinal, data with which models of dynamic interaction can be tested and thence extended to provide reliable predictions.

Our most important contribution to the massive scientific efforts now getting under way should focus on one of our greatest traditional centers of strength, the study of tropical rainforests. Tropical deforestation is surely one of the most devastating features of the present complex of destructive processes of environmental change. Annual burning adds a billion tons of excess carbon to the atmosphere, contributing perhaps a fifth of the increasing proportion of carbon dioxide responsible for the so-called greenhouse effect. And quite apart from this, it has catastrophic, irreversible consequences for maintaining biodiversity and the way of life of many indigenous peoples. Tropical forests are the richest of the earth's biological environments. Efforts to understand the tragic impacts of their disappearance must begin with securely established species identification and classification. This is, of course, a major concern and area of expertise of our National Museum of Natural History. Equally crucial to the same set of efforts is the Smithsonian Tropical Research Institute in Panama, its understanding of neotropical rainforests drawing upon nearly seventy years of ongoing studies.

Not adequately represented in our present program of tropical studies is work on the nature of the destructive processes themselves. We need to turn our attention to the interface between existing regions in which rainforests survive and the various forms of human assault on them—principally for cattle-raising, for timber products, and for a gradual enlargement of the area of subsistence farming by impoverished, landless peasant cultivators. There is much

yet to learn about these processes and the social and economic forces underlying them. How different are they today than in the preindustrial past? Can they be checked? Are they reversible? Such questions urgently call for interdisciplinary investigations, in which I hope some of our natural and human scientists can join forces to make a contribution much larger than they could make alone.

Sixth, there are additional, still unscheduled and perhaps not fully defined, programmatic initiatives of the Smithsonian that deserve to be mentioned. Of longest standing on the list is the Old General Post Office on Gallery Place. One of the early historic buildings of Washington, it was transferred to the Smithsonian some years ago in a condition of disrepair that virtually precludes our making any use of it. Although it is eagerly sought after by the National Portrait Gallery, the National Museum of American Art, and especially the Archives of American Art, efforts to obtain congressional funding for its complete renovation have so far been completely unavailing. One day, we must assume, this project will go forward. Suitably restored, the building has the potential of becoming not only an important architectural monument of the early Federal period but an attractive anchor for the entire Lower Pennsylvania Avenue development program.

Apparently closer to realization is a substantially larger facility to be located at either the Dulles or Baltimore airports. In fact, a final choice between these two locations is on the agenda for the regular meeting of the Smithsonian Board of Regents in January 1990, presumably to be followed by intensive negotiations with one of the two state governments and the introduction of enabling legislation in the Congress. Given the prior position in line of the National Museum of the American Indian, however, it is uncertain how quickly funding for construction might be expected to follow.

Central to the design of this new facility is our need for an extension of the Smithsonian's National Air and Space Museum in order to house additional aircraft and spacecraft. Especially pressing is the problem of the largest classes of vehicles, readily deliverable in an airport setting but needing expensive (and destructive) dismantling if they must be transported by road. An outlying location may be disadvantageous to many Washington visitors and residents, but on the other hand possibly will attract a large and growing flow of international air travelers. Equally important, only locations fairly remote from downtown Washington, D.C., like these two airports, make it possible to provide for future

expansion and extensive parking. As the planning horizon extends well into the next century, it is also probably safe to assume that access from the metropolitan center to either airport will be greatly simplified through a Washington Metro extension or greatly improved commuter rail service.

Accompanying preliminary plans for what we are simply referring to as a "NASM extension," it should be stressed, is a powerful rationale that goes well beyond merely housing an overflow of aircraft and spacecraft. "Remote sensing" from air and space platforms, to begin with, has provided the unique vantage point from which to see our gathering environmental problems as the unique, complex, and globally integrated challenge that we now know they constitute. That, too, will be part of the new museum's subject matter.

But beyond this, I urge you to consider the cumulative significance of the long string of scientific discoveries and engineering triumphs that have extended our human (and even more spectacularly, our instrumental) range so profoundly within a single human lifetime. Aiming at generations yet unborn, as it is the Smithsonian's responsibility to do, how could we possibly justify breaking off the continuation of the record we have already assembled in the National Air and Space Museum of this brief but mighty epoch of exploration without bending every effort to complete the story? Whatever this country is credited with, for as far ahead into the mists of the next millennium as we care to speculate, it seems impossible to deny that our leadership in this effort will stand out as our single, most enduring achievement.

Seventh, I turn back from program goals to a few remaining general characterizations of the approach we take. Some of these are already implicit in operating principles and long-term interests mentioned earlier. In the intensifying international debate over steps to protect the environment, for example, how could we not be guided by a strong concern for the interests of those countries least able to claim a just share of the world's resources? Our capacity for independent, effective action in this field is frankly very limited, but as an institution we must surely concur in spirit with an observation made in the Rockefeller Foundation's new Global Commons program:

The enormous inequality now separating the wealthy populations of the world from the one billion who barely survive on marginal lands and in urban slums could grow greater yet. This will occur if the political, financial, and technical responses to environmental damage are designed by and on behalf of the more powerful nations and if they fail to address equitable development opportunities.

More broadly, as the Smithsonian addresses a world audience, so it must maintain a determinedly world perspective. We seek at every point to override national rivalries, and ethnic, racial, religious, or gender stereotypes and prejudices of all kinds that act as barriers to intercommunication and common action. Our programs increasingly focus upon the interdependence and interconnectedness of peoples, cultures, civilizations, and their environments. As our substantial role in the forthcoming celebration of the Quincentenary of the voyage of Columbus suggests, we perceive in studies and exhibitions of shared history an important pathway to enhanced international understanding and cooperation. Even on issues where a preoccupation with America's own achievements might well seem natural, as for example in the conquest of aerospace, we are at pains to supplement this with a world perspective.

With limited resources, there are obvious limits to how far the Institution can reasonably project its concerns and programs into a worldwide theater of action. Our special concentration on tropical rainforests within the larger subject area of global change and biodiversity is a good example of the more significant contribution that a focusing of effort makes possible, as are also our Quincentenary activities in the cultural field. Clearly, we cannot begin to respond to the full range of opportunities for binational exchange programs that exist. Instead, we are at present directing our most substantial and consistent efforts toward Latin America, the Soviet Union, and Japan, and are seeking opportunities to extend our research and exchange activities in Africa.

An eighth organizing principle is one in which a traditional posture of the Smithsonian certainly will continue, and yet may also be on the cusp of significant change. As we regularly transcend national borders and concentrate on concerns and networks of intercommunication that embrace the whole world, we have also consistently emphasized long-term rather than immediate issues. This has meant that little policy-relevant research is conducted here, since much of it concentrates on transient or situationally dependent scientific issues. But the urgency and complexity of the challenges now facing us, particularly in the environmental field, are likely to force a reconsideration of this exclusionary tendency.

It has long been the case that our systematic collections in natural history are crucial points of departure for studies ranging from the most basic to some of the most highly policy-oriented or applied. This is especially true in fields like agriculture, forestry, wildlife management, and insect-



Among the additions to the Freer collection was this seventeenth-century Japanese gold-lacquer covered box embellished with the Tokugawa family crest.

borne vectors of disease. But can we adequately understand the dynamic interactions of human societies and rainforests, for example, without critically addressing the policy framework within which most of these interactions occur? Can we justify merely cataloging the deteriorating stock of biodiversity without contributing in some form to concerted international policies aimed at cultural as well as biological conservation? Precisely because the vision we pursue and communicate is consistently broad, long-range, and contextual, do we not need to make some contribution to policies that will help to shape a world where such a vision can flourish?

There is no natural ending to a listing like this. It could continue with a number of other qualities that are, or in my judgment certainly should be, associated with the Smithsonian on a more or less permanent basis. As the list is extended, however, its elements become more abstract, difficult to identify individually as genuinely unifying principles, and subject to debate. Perhaps the heterogeneity of these additional elements furnishes the best clue to a ninth and final member of my personal prescription for the Institution's basic core of premises and attitudes. It is that we should never neglect the importance of maintaining a significant degree of variability and novelty in what we do, and that we not shrink back, in anticipation of criticism—even official criticism—from a readiness to take positions that may be against the grain of popular opinion.

This is not to deny that our museums must be authoritative in much of what they do and display. But there is also a

place for taking consciously divergent or contrarian stances that may help to broaden the horizons as well as the makeup of Smithsonian audiences. Among the possibilities that extend almost indefinitely in this direction are, for example, finding exhibition themes that help to establish a link between ideas and material objects; undermining weak but popular assumptions and stereotypes with well-chosen examples; diagnosing social change as a shifting mix of continuities and abrupt departures or uncertainties (as in eastern Europe today); contrasting the not uncommon fringes of experience with imagined ideals or averages; highlighting the unnoticed or repressed; and dealing in tones of serious respect with the experimental, the controversial, and even the playful.

Let me return, in conclusion, to my earlier reference to the Smithsonian as a living Institution. I have spoken of it as I perceive it today, mindful of its traditions but responding to contemporary needs and opportunities. We should accept that life is change, and that the price of attaining permanent significance is endless adaptation to new challenges. Just as my personal view and each of yours will obviously differ at many points, so whatever we hold most in common about the Smithsonian will surely be turned in some unsuspected directions by our successors. In the words of the eminent social scientist Herbert Simon,

The idea of final goals is inconsistent with our limited ability to foretell or determine the future. The real result of our actions is to establish initial conditions for the next succeeding stage of action. What we call "final" goals are in fact criteria for choosing the initial conditions that we will leave to our successors. . . . Our essential task—a big enough one to be sure—is simply to keep open the options for the future or perhaps even to broaden them a bit by creating new variety and new niches. Our grandchildren cannot ask more of us than that we offer to them the same chance for adventure, for the pursuit of new and interesting designs, that we have had.

The Year in Review

For well over a century, the Smithsonian Institution has been known throughout the world as a unique array of museums. From American art to natural history, air and space to design, the Smithsonian has displayed the best of our cultural, historical, and scientific heritage. Today, at the brink of the twenty-first century, the Institution is taking a more aggressive and relevant role in shaping solutions to societal and planetary problems.

The Smithsonian is more than just museums—it is a leading

center of research, specializing in subjects as far-ranging as global warming, environmental conservation, astrophysics, and the sociohistory of Indian-Anglo relations. The Smithsonian draws on what it has discovered by mounting exhibitions for the public to view, in addition to publishing books, magazines, and news service stories, and sponsoring programs, classes, lectures, workshops, and television and radio programs.

This year, the Smithsonian reaffirmed its commitment to two timely efforts. Throughout the Institution, progress was made in expanding and communicating information about our nation's cultural diversity by ensuring that the Smithsonian's exhibitions, public programs, research, and staffing reflected a full range of diverse cultures. A particular effort was made to redress the neglect of American Indian culture. This long-overlooked story will be the focus of a newly proposed National Museum of the American Indian. On May 8, 1989, the Smithsonian signed an agreement with the Museum of the American Indian, Heye Foundation, to transfer its superlative collection of one million American Indian artifacts to the Smithsonian, and during the summer, legislation moved forward in Congress. As this publication went to press, the legislation establishing the new museum was signed into law by President Bush. The National Museum of the American Indian will be located in Washington, D.C., next to the National Air and Space Museum. The museum will also have an exhibition facility in New York City in the Old United States Custom House and a storage facility at the Smithsonian's Museum Support Center in Suitland, Maryland.

In a similar spirit, the Smithsonian's research units, continuing a long tradition and inspired by recent public concern for the environment, have focused on such issues as the hazards of global warming and deforestation, the importance of biological diversity, and the protection of endangered species. The completion of the Earl S. Tupper Research and Conference Center at the Smithsonian Tropical Research Institute in Panama and the Charles McC. Mathias Laboratory at the Smithsonian Environmental Research Center further promotes these efforts. A new endowment established by the Office of Membership and Development, the Global Environmental Endowment Fund, will foster research, conservation, training, and public education in these areas.

Two special forums focusing on these issues were held during the year. In May, the "Forum on Global Change and Our Common Future" was organized by the Smithsonian in cooperation with the U.S. Committee for Man and the Biosphere; the National Academy of Sciences; the American



Fourth-grade students, Demeka Yarborough and Jalil Shelton, Capitol Hill Cluster Schools, Washington, D.C., work together to light two flashlight bulbs with a D-cell battery by connecting them in a parallel circuit. Cooperative learning is integrated into the new hands-on science lessons for elementary students under development by the Science and Technology for Children project staff of the National Science Resources Center. (Photograph by Dane Penland)

Association for the Advancement of Science; and Sigma Xi, the scientific research society. About a thousand people attended the two-day event, which brought together members of the public, scientists, and journalists (more than 150 from around the world) to present a balanced and authoritative view of the wide range of global change issues. In September, the Smithsonian gathered together 150 members of the media and environmental authorities to explore the topic, "The Global Environment: Are We Overreacting?" Secretary Adams served as the chair; he was joined by vice-chairs Senator Timothy E. Wirth and Senator John Heinz.

To support and carry out a number of new endeavors, the Smithsonian created a new position, assistant secretary for institutional initiatives, and named Alice Green Burnette to the post. With congressional approval of the National Museum of the American Indian, the assistant secretary for institutional initiatives will initially focus on fund-raising for the new museum as her highest priority. Looking to the future, the office will also plan and propose mechanisms that will expand and deepen the Smithsonian's relationship with institutions of higher education, both locally and nationally. Burnette also will be involved in the promotion of the Smithsonian's 150th anniversary, to be celebrated in 1996

and, in concert with other members of the Smithsonian's Management Committee, will explore such diverse initiatives as proposals to establish an African American museum and to develop an extension of the National Air and Space Museum.

Just as the Smithsonian is looking boldly toward the future, it also had several occasions this year to mark milestones of the past. The National Zoological Park celebrated its centennial anniversary and used the event as a time to emphasize the ways that the Zoo is becoming a biological park, an environment that illustrates the varied and complex relationships between plants and animals. The Archives of American Art marked its thirty-fifth anniversary and opened its new central headquarters with space for permanent exhibitions in the Equitable Building in New York City. The National Museum of American History celebrated its twenty-fifth anniversary and boasted a record five million visitors this year. And the Smithsonian Astrophysical Observatory marked the tenth anniversary of the Einstein Observatory, the space satellite that carried the first telescope capable of producing images of cosmic X-ray sources that have led to spectacular images from the far reaches of the Solar System.

The Smithsonian also participated in several events of

national and international importance. The 150th anniversary of the invention of photography and the medium's evolution as an art form was the subject of intriguing exhibitions throughout the Institution. The National Museum of American History sponsored "The Seasoned Eye II," which included fifty photographs of people and places, taken with a wise and gentle perspective. The National Museum of American Art organized "The Photography of Invention: American Pictures of the 1980s," which included recent works by ninety artists. And the National Gallery of Art, which is administered by a separate board of trustees, capped the event with an exhibition of nearly four hundred original black-and-white and color photographs titled "On the Art of Fixing a Shadow: 150 Years of Photography." The show traced the history of photography as a fine art and was organized chronologically in four sections, from 1839 to the present.

The bicentennial of the French Revolution offered the Smithsonian the opportunity to join other cultural organizations around the world in celebrating the French Revolution of 1789 and the Declaration of the Rights of Man and of the Citizen, which it inspired. The 200-year-old copy of the document was brought to the United States for the first time and displayed in the Smithsonian's Arts and Industries Building as part of the Institution's involvement in this important event.

Other Smithsonian activities shaped around the French bicentennial included the Cooper-Hewitt Museum's landmark exhibition "L'Art de Vivre: Decorative Arts and Design in France, 1789-1989," which brought together more than five hundred examples of furniture, silver, glass, ceramics, textiles, wallpaper, couture, and jewelry created by the great names in French design and manufacturing. The exhibition explored the techniques, materials, consumer trends, and personalities that shaped the decorative arts in France from the age of Versailles in the eighteenth century to the bicentennial period of today.

The French were also remembered during this year's Festival of American Folklife, which featured French and French American culture. On the eve of Bastille Day, the Smithsonian Resident Associate Program featured Johns Hopkins historian Robert Forster, who discussed the impact of the Revolution on the history of France and the world. In addition, the Smithsonian's tenth International Symposium, organized by the Office of Interdisciplinary Studies, was titled "Les Droits de l'Homme and Scientific Progress." It commemorated the 200th anniversary of the French Revolu-

tion, the French Declaration of the Rights of Man and of the Citizen, and the U.S. Bill of Rights. Another anniversary took place this year, one that is strictly an American experience. The National Air and Space Museum celebrated the twentieth anniversary of the first U.S. Moon landing. Events marking the day included a public ceremony on the museum's steps with the three *Apollo 11* astronauts—Neil Armstrong, Buzz Aldrin, and Michael Collins—and President Bush and other dignitaries. On July 20, the museum stayed open until 1:30 a.m. and replayed television coverage of this historic event. *Air & Space/Smithsonian* magazine used the historic moment as an opportunity to create its first single-subject issue, which proved to be a sellout.

Exhibitions surrounding special events represent only a small portion of the Smithsonian's offerings this year. Other shows, appealing to wide and diverse audiences, covered subjects in history, the natural sciences, art, and culture. The exhibitions serve to educate and enlighten; they also expose the public to relics from the past, and to the genius of contemporary artists, scientists, and craftspeople. The evidence of talent on display at the Smithsonian reminds us of what humankind can achieve and encourages us to reach ever farther in the struggle to realize our full potential.

The numbers reveal that the Smithsonian continues to draw large crowds to its numerous and varied exhibitions. In FY 1989, almost twenty-five million visits were recorded at the Smithsonian's fourteen museums and galleries; an additional three million visits were made to the National Zoo.

One of this year's most inspiring exhibitions was the Arthur M. Sackler Gallery's show "Yani: The Brush of Innocence." Featuring sixty-nine paintings of Wang Yani, a fourteen-year-old Chinese artist, the show revealed the work of a child prodigy who has the uncanny ability to reflect the history of Chinese art in simple renderings of animals, flowers, and everyday scenes. Already well-known in her native land, Yani is the youngest artist ever to have a one-person show at the Smithsonian.

Another extremely popular exhibition this year was the National Museum of American Art's "Perpetual Motif: The Art of Man Ray." The exhibition captured Man Ray's artistic vision and contribution as one of the founding fathers of dada and surrealism through paintings, works on paper, photographs, films, and objects. Also shown at the National Museum of American Art was the "Patricia and Phillip Frost Collection: American Abstraction, 1930-1945," which highlighted another important artistic movement: the rise of

abstract art during the years of the Great Depression. The Renwick Gallery celebrated sailing vessels in its major exhibition "The Boat Show: Fantastic Vessels, Fictional Voyages," which featured eighteen three-dimensional objects drawing upon the legacy of maritime imagery.

At the Hirshhorn Museum and Sculpture Garden, "Recent Acquisitions, 1986-1989" presented primarily contemporary works from the 1940s to the 1980s that the museum had acquired since 1986. "Robert Moscovitz" represented the first museum retrospective for this important American artist and included collages, drawings, and paintings spanning his thirty-year career.

To mark our cultural heritage, several museums mounted exhibitions chronicling our rich and recent past. At the National Museum of American History, a large exhibition, "The Ceremonial Court," now on permanent display, features White House memorabilia, including first ladies' inaugural gowns from recent administrations, pottery, glassware, pieces of White House china, and presidential objects such as Lincoln's top hat and George Washington's telescope. "American Television from the Fair to the Family, 1939-1989," also at the National Museum of American History, traced the rise of television from its introduction at the New York World's Fair in 1939 to the present, with ample documentation of early television classics such as "Lassie," "Star Trek," and "Gunsmoke." The National Portrait Gallery included another salute to the broadcasting industry in "Pioneers of American Broadcasting," which featured inventors, entertainers, writers, and newscasters who have had an impact on the industry.

Focusing on the African American experience, the Anacostia Museum unveiled the highly successful exhibition "The Real McCoy: African American Invention and Innovation, 1619-1930," which celebrates well-known inventors, as well as the often forgotten African American men and women who contributed to technology from the Colonial era to the early twentieth century. The National Museum of African Art featured "Echoes of the Kalabari: Sculpture by Sokari Douglas Camp," the museum's first show of contemporary sculpture.

The world of science and technology is ever-expanding. Some facets of its exciting progress are documented in a new National Air and Space Museum gallery, "Beyond the Limits: Flight Enters the Computer Age." Organized in seven exhibit areas, the gallery illustrates the varied ways the computer is used in the aerospace industry. Design, flight testing, and flight simulation are just a few of the topics covered in this

innovative display. Each exhibit in the gallery includes hands-on interactive computer terminals that enable visitors to see for themselves the kinds of tasks that computers perform.

"Inside Active Volcanoes," a major exhibition organized by the Smithsonian Institution Traveling Exhibition Service (SITES), features a natural phenomenon that has forever fascinated and held people in awe. Premiering during the summer at the National Museum of Natural History, the exhibition details the eruptions of Kilauea and Mount St. Helens and includes many special features that dramatize this spectacular natural event. The exhibition includes a real-time seismic computer display that monitors seismic activity on the island of Hawaii, demonstrating that it is one of the most seismically active places on Earth. In addition to "Inside Active Volcanoes," SITES organized twenty-three other new exhibitions and booked an additional 327 exhibitions in other locations. During the year, SITES exhibitions traveled to thirty-seven cities in forty-six states, the District of Columbia, and countries abroad and were viewed by more than eleven million people.

At the National Zoological Park, new exhibitions are reinforcing the Zoo's evolution into a biological park. The important addition of "Wetlands," opened by renowned conservationist Sir Peter Scott and Smithsonian Secretary Emeritus S. Dillon Ripley as part of the Zoo's centennial celebrations, reflects a concern for the little-understood and complex relationship between plant and animal life. Also in keeping with the Zoo's birthday celebrations, a unique photographic display illustrated its history, from the Zoo's early days as a collection of exotic animals to its development as a highly respected research and educational institution. Throughout the Zoo, there were more than a thousand births and hatchings; among the most significant was the birth of seven black-footed ferrets, a North American species that is extinct in the wild.

Reaching out to ever wider audiences, the Smithsonian reinforced its commitment to the African American, Hispanic American, Native American, and Asian American communities, as well as to the vast numbers of disabled visitors who visit its facilities each year. Even as the groundwork for the National Museum of the American Indian was being laid, the Smithsonian's Office of Public Affairs launched a new Native American Media Outreach Program. Under the leadership of a Seneca Indian, the Institution introduced itself to more than four hundred publications and a network of Native



Laura and Esther Between-the-Lodges and granddaughter Julie Lakota inspect handcrafted Sioux cradles from the collection at the National Museum of Natural History. They came to the museum to participate in an oral-history project on the traditional arts of Lakota Sioux women. (Photograph by Jane Beck)

American media professionals from tribes across the country and prepared a prototype of a newsletter for Native Americans.

David Warren was appointed to the Office of Interdisciplinary Studies as special assistant for applied community research. He served as adviser and resource for various outreach programs to American Indian communities and constituencies in the United States and abroad and was appointed to the search and program committees of the National Museum of the American Indian.

During the year, Smithsonian museums and public programs were awarded a total of more than \$550,000 through the Educational Outreach Program, administered by the Office of the Assistant Secretary for Public Service. One project to which Educational Outreach funds were allocated was the Hopi Ceramics Project, which represents a collaboration among the Smithsonian Conservation Analytical Laboratory, a Hopi ceramicist, and a Hopi film producer. Combining American Indian traditions and the appropriate scientific methods, the project has served as a model program for another project with American Indian communities. At the National Museum of Natural History, a program was created to bring storytellers, musicians, dancers, and artisans to the museum setting from tribes throughout the United States and Canada. The program, started in July of 1989, will continue for two years. The National Museum of American History documented the experiences of Buffalo Bird Woman, her brother Wolf Chief, and her son Edward, in an exhibition titled "The Way to Independence: Memories of a Hidatsa Indian Family, 1840-1920," which was organized by the Minnesota Historical Society and coordinated by the museum's American Indian Program.

The Office of the Committee for a Wider Audience underwent a revision in 1988-1989 to become the Office of Wider Audience Development (OWAD). In the absence of an OWAD director, the Office of the Assistant Secretary for Public Service managed the OWAD programs—exhibitions, membership programs, media output and ethnic working committees—as the Institution experienced increased participation of culturally diverse audiences. Noteworthy among these programs was the third annual Smithsonian observance of the birthday of Dr. Martin Luther King, Jr. Presented on January 16, 1989, the event featured John Kuo Wei Tchen, director of the Asian Pacific Studies Center at Queens College.

With the establishment of the Smithsonian Cultural Education Committee in 1987, Public Service strengthened its outreach efforts by addressing new responsibilities posed to the national museum by the increase and diversity of cultural and ethnic communities in the United States. Toward that end, the committee has commissioned a paper titled "Cultural Equity," written by Dr. Henry Gates, W. E. B. DuBois Professor of Literature, Cornell University.

As in previous years, the Smithsonian participated actively in Black History Month, Asian Pacific American Heritage Week, and National Hispanic Heritage Month. Seven Smithsonian museums and the Resident Associate Program helped mark Black History Month, which centered around the role of Afro-American churches in economic, political, and social development at home and abroad. In observance of Asian Pacific American Heritage Week, the Smithsonian focused on the history of Filipino women in America, the internment of Japanese Americans during World War II, and daily challenges faced by recent immigrants from Southeast Asia. During National Hispanic Heritage Month, the Institution offered music programs, films, and special tours of Hispanic American art at the National Museum of American Art. As part of the Smithsonian's recognition of the importance of the Hispanic American community, the noted Mexican author Carlos Fuentes is writing and narrating "The Buried Mirror," a bilingual series of five one-hour television programs about the interaction between Iberia and the Americas. This series, which will finish production in 1991, is the centerpiece of the Smithsonian's planned Columbus Quincentenary activities marking the 500th anniversary of Columbus's historic voyage.

In another tribute to North American cultures, the exhibition of "Caribbean Festival Arts" on display at the International Gallery brings to life three important Caribbean festivals:

Carnival in Trinidad and Tobago; Jonkonnu, a street masquerade once held at Christmastime in Jamaica; and Hosay, an Islamic festival celebrated in Trinidad, Jamaica, and other Caribbean islands. The exhibition, which includes thirty-six imaginative costumes displayed on life-size mannequins in a setting reminiscent of the Caribbean islands, shows how these festivals are derived from the convergence of African, English, French, Indian, and Spanish traditions.

The annual Smithsonian Festival of American Folklife also picked up on the Caribbean theme, focusing on, among other things, the state of Hawaii and the influence of Creole traditions on Caribbean cultures. To study these and other cultures on a grass roots level, the Office of Folklife Programs initiated a new summer folklore institute this year.

In addition to reaching out to ethnic communities, the Smithsonian also made new overtures to disabled people. Discovery Theater extended its season to July this year so it could produce "Rosa Parks: Speaking Out" in both English and American Sign Language with a cast of deaf actors and hearing actors. The show was presented in conjunction with the Deaf Way, an international festival and conference on the language, art, and history of hearing-impaired people. The Office of Elementary and Secondary Education (OESE) and the Office of the Assistant Secretary for Museums also participated in this event with a brochure highlighting the works of deaf artists. This year, OESE also produced a pictorial newsletter for mentally retarded adults explaining Smithsonian events and exhibitions.

To help Smithsonian museums and bureaus learn more about their visitors, the Office of Institutional Studies worked in collaboration with other Smithsonian offices and bureaus to examine their constituencies and activities. The aim of the office is to provide information and analyses that fulfill the common goal of improving and enriching the Smithsonian experience. Scientifically sampled surveys help bureaus understand their visitors' characteristics, attitudes, and interests. This information has led to in-depth profiles of Contributing Members and Resident Associates. An in-depth six-month demographic study of visitors to the National Air and Space Museum also resulted in two derivative studies. One of those studies helped explore the feasibility of a NASM extension facility. The second sketched preliminary visitor profiles for two other Smithsonian museums on the Mall—the National Museum of American History and the National Museum of Natural History.

Exhibition studies seek to assess not only who comes to specific exhibitions but also what educational experiences

occur in the gallery. Several upcoming studies in the National Museum of Natural History will examine the effectiveness of interactive computers as sources of both education and entertainment. While many studies to date have focused on existing audiences and services, an underlying and critical theme for research is the concern for finding ways of reaching, attracting, and communicating to new and diverse audiences.

Education for all people—from the very young to senior citizens—continued in full force this year with a wealth of high-quality and timely activities offered through the Smithsonian Resident Associate Program (RAP). The program offered 1,938 activities that reached more than 294,000 adults and young people. As in other parts of the Institution, RAP made special efforts to reach wider audiences. Its Discover Graphics program offered 200 talented high school students and their teachers in the Washington, D.C., area free etching and lithography training. The new Afro-American Studies program presented a wide range of liberal arts courses connected to Afro-American heritage and reached a record 10,000 people through forty varied events. And traditional RAP events—the twenty-third annual Kite Festival, Tuesday Mornings at the Smithsonian, and Campus on the Mall—continued to attract record audiences ranging from 10,000 people for the kite festival to more than 70,000 students to the Campus on the Mall program.

The Smithsonian National Associate Program offers innovative educational opportunities to more than two million members around the world, providing an effective way to expand the Smithsonian's boundaries. The recently established Research Expedition Program spanned the globe, from the Arenal Volcano near San Jose, Costa Rica, to American Indian studies in Montana.

Committed to education for people who are not able to visit the Institution, the Smithsonian reaches audiences through television, radio, books, and magazines. Through the Office of Telecommunications, the Smithsonian has developed several important video projects, including *The Earth in Our Hands*, a PBS broadcast narrated by Robert Redford that follows the laboratory and field staff of the Smithsonian's Marine Systems Laboratory as its scientists work to construct an experimental model of the Earth's ecosystems. To reach Spanish-speaking audiences, the office designed a pilot, "Descubra el Smithsonian," which describes the Smithsonian's museums and programs in a series of two-minute features. The Institution's Latino Media Committee served as an adviser on the project.



In a children's workshop conducted for the exhibition "The Art of Paul Manship" at the National Museum of American Art, participants developed their visual skills by studying the artist's interpretation of such animals as lions, dolphins, and baboons.

"Radio Smithsonian," a weekly half-hour series, is now carried by ninety National Public Radio affiliates and is heard by some four million people. "Smithsonian World," a coproduction of the Smithsonian and WETA-TV in Washington, D.C., with major funding from Southwestern Bell Corporation, won several awards for its 1989 productions, including CINE Golden Eagle awards for "The Living Smithsonian" and "American Dream at Groton." On line for next year are programs about the National Zoo, an exploration of how people have found new and ingenious ways to adapt food to fast-paced and ever-changing technological culture, and a look at a recent exhibition of contemporary Nigerian sculpture at the National Museum of African Art.

Another television project that emerged this year, through the efforts of the Office of the Assistant Secretary for Public Service, was "Invention," planned as a thirteen-part television series focusing on the collections of the National Museum of American History. Funded and produced by the Discovery Channel and scheduled for airing in 1991, the series is expected to be broadcast on cable television (Discovery Channel) nationwide and subsequently released for worldwide distribution.

Andrew Ferguson was appointed special assistant for media activities in the Office of the Assistant Secretary for Public Service in January. In addition to carrying out his advisory and development responsibilities, Ferguson served as executive producer of the "Smithsonian Video Collection," a six-hour video series, jointly undertaken by the Smithsonian and Eastman Kodak, on some of the Institution's most popular collections.

As for Smithsonian publications, circulation of *Air & Space/Smithsonian* and *Smithsonian* magazines continued to soar, making them among the most important museum-affiliated magazines in the world. The Office of Public Affairs increased circulation of its newsletter *Research Reports* by more than 6,000 readers. Now, nearly 58,000 people receive *Research Reports*, which will increase the frequency of publication from three to four times a year in 1990.

The Smithsonian Institution Press published eighty-five books this year, covering topics in art, science, anthropology, aviation, and history. The Book Development Division is establishing a children's publishing branch at the Press that would focus on twentieth-century American children's classics with a broad, multicultural appeal.

The Office of Optical Publishing, established in 1988 to promote the development of "hypermedia" or multimedia products and to provide in-house expertise in all aspects of interactive educational technology, carried forth a number of projects this year. In progress are interactive compact disks produced in conjunction with Phillips Polygram: a disk version of the Smithsonian Institution Press publication *Treasures of the Smithsonian* (1983) by Edwards Park and disks on the National Air and Space Museum and the Duke Ellington Collection.

In addition to the Office of Elementary and Secondary Education, two central offices at the Smithsonian work with our nation's schools in an attempt to improve education on a large-scale basis. The Science and Technology for Children curriculum of the National Science Resources Center (NSRC) introduces to elementary school classrooms hands-on science units in the natural, physical, and biological sciences as a way to improve science teaching. The first three units in this series are being field-tested in schools throughout the country. In addition to promoting this innovative concept through classroom materials, the NSRC also holds annual leadership institutes to foster effective teaching methods at the grass roots level. Also concerned with improving education nationally, the National Demonstration Laboratory for Interactive Educational Technologies focuses on the use of



Cameras roll in the Enid A. Haupt Garden on a soggy spring day as celebrity Pat Morita tells a group of twenty children "The Smithsonian Story." Through the magic of filmmaking, the final thirty-second television public service announcement made the day look sunny and bright.

interactive technologies such as videodiscs as a way to strengthen the nation's approaches to education. With the increasing worldwide concern for the environment, the Smithsonian accelerated its research efforts in this area. The Smithsonian Astrophysical Observatory (SAO), the Smithsonian Environmental Research Center (SERC), the Smithsonian Tropical Research Institute (STRI), and the National Museum of Natural History all have research programs focusing on key aspects of the environment.

At SAO, researchers are investigating the processes that may preserve or destroy the Earth's ozone layer. Using data from the spectra of several stratospheric molecules obtained by a balloon-borne infrared spectrometer flown in May 1989, SAO scientists are investigating how the amounts of such chemicals as ozone, carbon dioxide, hydrogen peroxide, and hydroxyl vary with both time and altitude. This information is being analyzed as part of the effort to determine what processes may preserve or destroy Earth's protective shield of atmosphere.

For the last several years, SERC has been involved in a project designed to measure the amount of harmful radiation penetrating the Earth's atmosphere. In addition, SERC

researchers are measuring the levels of carbon—which are reflected in the "greenhouse effect"—in specialized environments on the Chesapeake Bay. STRI has long been interested in biological diversity, and its location on the isthmus of Panama makes it an ideal center for such research. Researchers are studying new species in the Caribbean, interrelations in tropical communities, and the impact of the greenhouse effect on Earth.

The National Museum of Natural History/National Museum of Man is also involved in serious study of the environment. The museum manages a biodiversity program called the Minimum Critical Size of Ecosystems (MCS), located in Manaus, Brazil. The project is studying ways to conserve the tropical forest. In a second biodiversity project, museum researchers sent scientists to the Amazonia forests in Manu Reserved Zone, Peru, for the third year in a row, to participate in long-term inventories of tropical life as part of an effort to protect rare and endangered species.

Other areas were also studied this year as researchers strived to add to our collective knowledge about the Earth, the solar system and the Universe. At SAO, scientists became detectives as they struggled to decipher lunar sam-

ples brought back by *Apollo 11* astronauts twenty years ago. Another team at SAO is working to understand data from the Einstein Observatory, which brought information on the first cosmic X-ray sources to Earth, a decade after they were first received. The result of this endeavor will be a catalogue of some one thousand X-ray objects, half of which had not been seen before the satellite's operation.

Research efforts at the National Zoological Park expanded this year as a result of the opening of the renovated Research Building. Several researchers were added to the staff to explore areas ranging from animal conservation to the establishment of a wild animal tissue-cell culture bank. Conservation has been an important component of research efforts at the Zoo for the last several years and is especially highlighted in its world-renowned conservation program. In 1989, the number of reintroduced tamarins in the wild reached sixty-seven; twenty-nine of those survived. These in turn had thirteen surviving offspring.

The National Air and Space Museum carries out research in a wide range of areas, including the history of aviation, the history of rocketry and spaceflight, and comparative plane-tology. This year's advances include the completion of additional volumes in the Smithsonian History of Aviation Series; detailed geological mapping of parts of Mars; research on desertification in Egypt, Mali, and Botswana; and research on the development and testing of infrared spectroscopic instruments for ground- and space-based astronomical observations through the newly established Laboratory for Astrophysics.

The Conservation Analytical Laboratory continued to investigate techniques to preserve the Smithsonian's valuable collections. One multiyear project is concerned with the effect that solvents used to clean paintings have on long-term preservation. In another important research effort, scientists are analyzing the effect of insecticides—a necessity in most museums—on the color stability of textile dyes.

Smithsonian research opportunities for students and scholars are unparalleled around the world. The Office of Fellowships and Grants (OFG) administers programs that provide an important link between the Institution and scholars from other countries. This year, the office awarded eighty-seven predoctoral, postdoctoral, and senior postdoctoral Smithsonian Research Fellowships. Grants included both long- and short-term appointments and involved research in a wide range of fields, from protein metabolism in lactating grey and harbor seals to the representation of consumer

culture from 1900 to 1930. The Faculty Fellowship Program is especially geared to minority faculty members and enables participants to conduct research at the Institution for two to four months. OFG also administers internship programs; this year, a total of 131 appointments were made, a substantial increase over previous years.

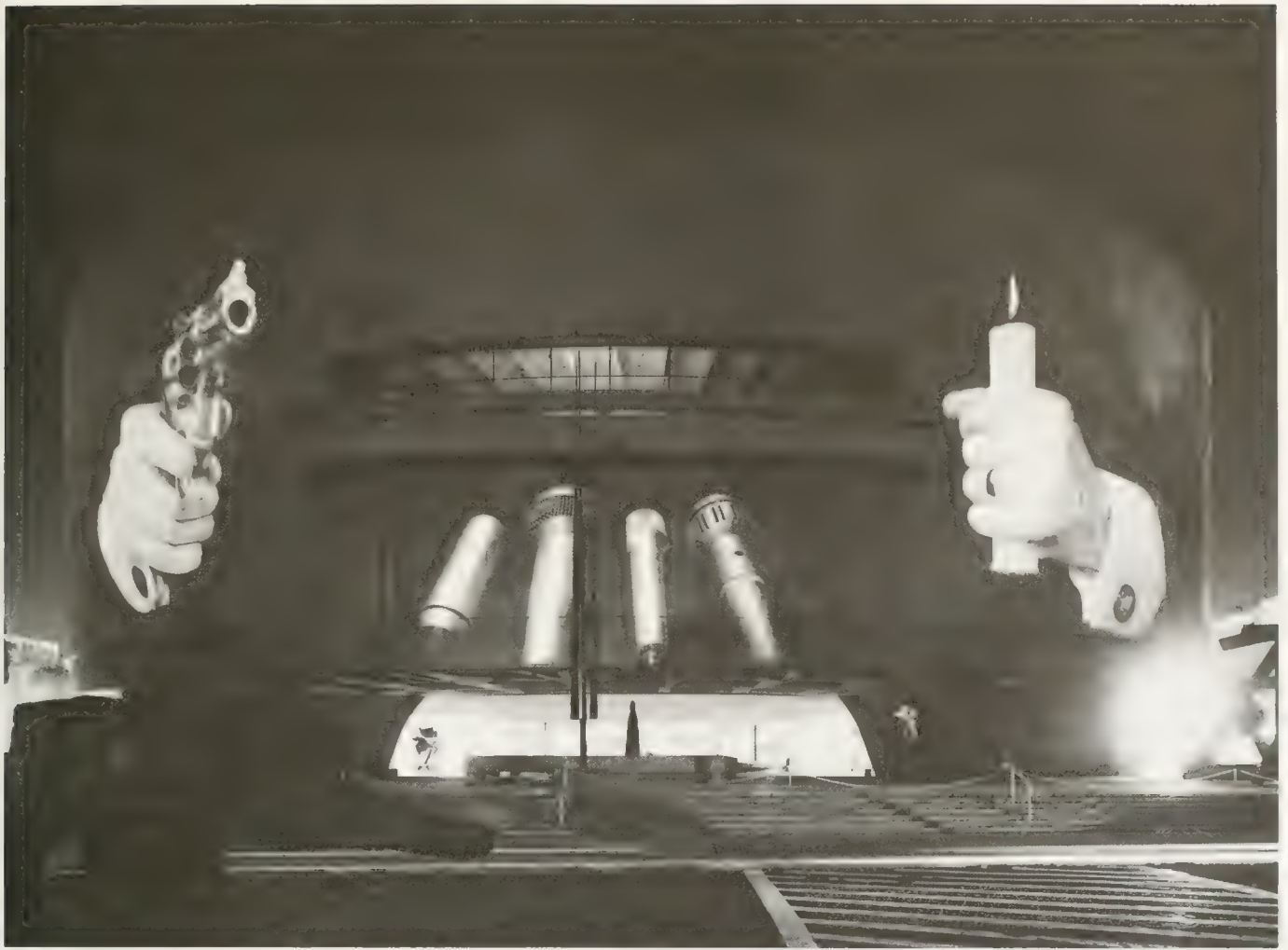
Several bureaus offer degree programs in cooperation with a major university. Now in its sixth year, the Cooper-Hewitt/Parson's Master's Program in the History of Decorative Arts offered invaluable training to future scholars and curators. The doctoral program under the auspices of the Conservation Analytical Laboratory (CAL) in collaboration with the Johns Hopkins University continues to flourish, with CAL staff supervising the work of three doctoral students this year.

Lectures, symposia, and seminars are another way that the Smithsonian seeks to educate the academic community and the general public. The Smithsonian Resident Associate Program presented one hundred lectures, with such well-known figures as novelist Alice Walker, poet Nikki Giovanni, and Nobel Prize-winning geneticist James D. Watson. All-day seminars covered medieval French architecture, Hinduism, and Central American history and politics. The Office of Interdisciplinary Studies sponsored several symposia, including the second colloquium on world food issues.

Providing information to the public by answering questions and circulating books is another important service that the Smithsonian offers. This year, the Smithsonian Institution Libraries answered 57,745 questions and circulated 42,684 books. At the Smithsonian Institution Archives, staff answered more than 1,200 requests and provided nearly 6,000 items and 15,000 copies to researchers. The Visitor Information and Associates' Reception Center received and processed more than 57,000 pieces of mail and distributed 3,500 information packets. And nearly 4,500 faculty members, graduate students and fellows, museum and gallery curators, collectors, and freelance writers and historians made use of the Archives of American Art's rich collections.

Each year, the Smithsonian seeks to improve its facilities by adding to its already impressive collections. This year was no exception as the Institution enhanced its holdings with several noteworthy acquisitions.

At the Hirshhorn Museum and Sculpture Garden, the museum's permanent collection was enriched by twelve gifts and thirty-two purchases. Notable acquisitions include a major painting by Jasper Johns, *Untitled* (1987); significant



A monumental projected image by the Polish-born, politically oriented artist Krzysztof Wodiczko appeared on the exterior of the Hirshhorn Museum on the evenings of October 25, 26, and 27. The dramatic image reflected, among other interpretations, the artist's views concerning America's media-oriented election process.

works by European artists, including *The Soul of Morvan* (1954) by Jean Dubuffet and *Stairwell (Treppenhause)* (1982) by Sigmar Polke; and several pieces by Washington-area artists, including Kendall Buster, Robin Rose, Alan Stone, and Andrea Way.

The National Museum of American Art added paintings that marked significant developments in each artist's career. Louis Comfort Tiffany's *Market Day outside the Walls of Tangier* (1873) illustrates the artist's fascination with oriental themes. Alice Neel's oil portrait of *Max White*, Theodore Roszak's *Recording Sound*, and significant sculptures by Brian Hunt were among the museum's important 1989 acquisitions. The National Portrait Gallery acquired a bronze bust of President George Bush, as well as the John Smibert portrait of Bishop Berkeley from the Morris and Gwendolyn Cafritz Foundation and the Rene Bouche portrait of Benny Goodman from the musician's daughters. The Cooper-Hewitt Museum added 2,253 items in 1989, including the Ludmilla and Henry Shapiro Collection of Soviet porcelains.

The acquisitions of the National Museum of American History spanned a wide range of subjects, including 7,000

objects from Larry Zimmerman's World's Fair Collection; several hundred pieces of ceramic tableware produced by the Salem China Company; a collection of Max Factor cosmetics from the 1920s through 1950; and 196 Chinese patent medicines, tonics, vitamins, antibiotics, and contraceptives.

The National Museum of African Art had a successful year, acquiring 225 objects, a marked increase over last year's total of 22. One of the most exciting acquisitions was a collection of 85 ceramic vessels from central Africa. Other significant gifts include a Yoruba palace door carved by master sculptor Olowe of Ise and a rare Kongo cast copper-alloy bracelet from Zaire. The Arthur M. Sackler Gallery acquired a late eighteenth-century Nepalese painting and a glazed jar from a modern Japanese ceramicist. The Freer Gallery of Art acquisitions included a seventeenth-century gold-lacquer covered box and a Ming dynasty Chinese hanging scroll.

The National Air and Space Museum added 120 objects to its collections, including archives from the Fairchild Corporation, the HiMAT aircraft collection, and a C-130 cargo carrier typical of those used in Vietnam. And the National

Museum of Natural History, among its tens of thousands of acquisitions, received a collection of four thousand silver-spotted fritillary butterflies gathered from nine western states over a period of forty years. They fill an important gap in the museum's rare butterfly collections.

To manage these vast holdings, the Smithsonian has been establishing computer data bases over the past several years. The Office of Information Resource Management implemented new Collections Information System data bases for the mammals, birds, reptiles and amphibians, and botany collections within the National Museum of Natural History and began work on data bases for entomology and anthropology and for the permanent collections of the National Museum of American Art. In addition, work on data bases for the permanent collections at the National Air and Space Museum is also under way.

The Smithsonian would not be able to function smoothly without the many offices behind the scenes that lend their expertise to its countless activities. Under the direction of the Office of Design and Construction, many important renovation projects are progressing smoothly. An architectural firm has been selected to determine if the Baltimore-Washington International Airport or the Dulles International Airport is an appropriate site for an extension to the National Air and Space Museum. The office is also managing the renovation of the Freer Gallery of Art, which is well under way. And the Tupper Research and Conference Center at the Tropical Research Institute in Panama and the Smithsonian Information Center in the Castle both opened this year. Programs to maintain the National Museum of American History and the National Museum of Natural History are also part of this office's domain.

Other administrative offices concentrated on improving work conditions at the Smithsonian. The Office of Personnel Administration continued in its efforts to improve the quality of staff services provided to Smithsonian bureaus and organizations. This year a special examining office with authority delegated from the U.S. Office of Personnel Management was established to speed up staffing and recruitment actions. The Office of Equal Opportunity continued to emphasize the placement of minorities in senior, professional, and administrative positions through the Institution-wide affirmative action plan. The Institution sustained limited but steady progress in its effort to achieve cultural diversity in key positions by the appointment of a minority woman as an assistant secretary, and American Indians, Asian Americans,

African Americans, and Hispanic Americans to a variety of research, curatorial, and program management positions.

The Office of Information Resource Management (OIRM) implemented the first phase of an Institution-wide electronic mail system, linking more than 350 staff members into a central system. OIRM also continued to establish data communications service between the Mall and the Smithsonian Tropical Research Institute in Panama.

The Office of Printing and Photographic Services expanded its highly successful cold storage facility during 1989 to provide additional space for the archival protection of its growing photographic collection, which is increasing by 20,000 photographs each year.

To tighten security at the Smithsonian, the Office of Protection Services (OPS) changed all the locks at the Museum of Natural History and extended card access systems to new sites, including the National Museum of American Art, the National Portrait Gallery, and the Garber Facility. The National Air and Space Museum became the last major Smithsonian facility to be converted to the Institution's own proprietary security system.

Recognizing the importance of a healthy work force, OPS expanded the Institution's occupational health program by instituting employee wellness activities such as an HIV-positive support group as part of the Employee Assistance Program.

The Office of Architectural History and Historic Preservation tried an innovative historic preservation project this year—recording on videotape the renovation process of the Great Hall of the Smithsonian Castle. The technique proved to be a successful way to document progress and will be used for other such projects.

Behind-the-scenes work at the Smithsonian involves people—both staff and volunteers—who contribute immeasurably to the functioning of the Institution. This year, volunteerism at the Smithsonian continued to rise, with whole families giving of their time and expertise to make the Smithsonian experience as enjoyable as possible. Some 5,252 volunteers were active during the year, contributing 468,099 hours of service. The volunteers provided assistance during regular museum hours and at special events. And two important “labors of love”—the annual Washington Craft Show and the annual Christmas Dance—sponsored by the Women's Committee of the Smithsonian Associates collected enough money to enable the committee to award forty-four grants to twenty museums and bureaus. Sixty-three active members and seventy-five resource members

from the Women's Committee contributed more than seven thousand volunteer hours to the Institution.

The dedication of all the people associated with the Smithsonian—from museum curators to public affairs officers, security guards to volunteer docents—has enabled the Institution to thrive as a dynamic multifaceted center of education that provides pleasure and intellectual stimulation to millions of people from around the country and the world.

Staff Changes

This last year began with the extraordinarily disheartening death of Joseph Coudon, who had served as the special assistant to the secretary for the last eight years. While his presence will long be missed, we were pleased to bring to that position Marie Mattson from the National Museum of American History. As the year progressed, we lost two other highly valued members of the staff. Rev. John R. Kinard, the founding director and guiding light of the Anacostia Museum for twenty-two years, died in August; the museum—one is tempted to say *his* museum—is now under the steady hand of interim director Zora Felton. More recently, we were very sorry to lose, at first by retirement and then by death, the accomplished Sam Greenberg, who had served as director of the Museum Shops since 1982.

It is always a pleasure to find among the existing staff people who are ready to assume larger responsibilities. This year, for instance, we asked Alice Green Burnette, who came to the Smithsonian in 1988 from Howard University as our deputy assistant secretary for external affairs, to assume the new position of assistant secretary for institutional initiatives. Similarly, we appointed Milo Beach, formerly assistant director for the Arthur M. Sackler Gallery, to the position of director of the Freer and Sackler Galleries; David L. Correll, formerly acting director at the Smithsonian Environmental Research Center, to be director of the center; and Joseph M. Carper, formerly acting director of the Smithsonian National Associate Program, to become director of the program. The obverse of this process, however, takes its unfortunate toll, and in that regard we accepted the resignations of Howard Toy as director of the Office of Personnel Administration, Patrick Stanton as director of the Office of Audits and Investigations, Jane Glaser as director of the Office of Museum Programs, and James Buckler as director of the Office of Horticulture.

As the year draws to a close, we are still in the process of

recruiting for a number of vacancies in the senior staff, but we were delighted to attract Barbara J. Smith (formerly assistant dean of libraries at the Pennsylvania State University) as director of the Smithsonian Libraries.

These comings and goings remind us all, once again, of the extent to which this venerable Institution is dependent upon the qualities and energies that the staff bring to bear. Indeed, it is they who constitute the core vitality and continuity that the Smithsonian has come to symbolize.

Report of the Board of Regents

The Board of Regents' first meeting of the year, held on January 30, 1989, was called to order as the Carlisle H. Humelsine Memorial Meeting in honor of the late regent who had died shortly before. Paying tribute to Mr. Humelsine, the Board of Regents expressed their heartfelt sympathy to Mrs. Humelsine and "their deep sense of loss that the Institution and the nation have sustained in the passing of this extraordinary citizen, public servant, and member of the Board of Regents." He had been a regent since 1980 and chairman of the Executive Committee since 1982. To fill voids left on the Executive Committee by Mr. Humelsine's passing, the regents elected Mr. David C. Acheson as chairman and Chief Justice William H. Rehnquist as a member.

The board amended its bylaws to provide for a nominating committee and to effect certain other editorial changes. The board also accepted the recommendations of the Audit and Review Committee with respect to contracting for external audit services, providing that the firm of Coopers & Lybrand be engaged under contract on a yearly basis, renewable at the pleasure of the board or committee for no more than ten years without further competitive bidding.

The Audit and Review Committee of the Board of Regents met on December 7, 1988, to discuss financial procedures at the Smithsonian Astrophysical Observatory, aspects of the amendment to the Inspector General Act of 1978 enacted on October 18, 1988, and steps taken to safeguard the financial interests of the Smithsonian's non-U.S. employees in Panama. The Personnel Committee reported that it had found no conflict of interest whatsoever in its annual review of the senior management's statements of financial interests. As recommended by the Investment Policy Committee, the regents approved the appointment of Mr. John English as a committee member. On October 18, 1988, the Investment Policy Committee met with the investment managers and exchanged views of investment opportunities.

Building upon extensive prior discussion, the Board of Regents accepted in principle the major provisions of the most recent draft agreement between the Museum of the American Indian, Heye Foundation, and the Smithsonian and, bearing in mind that certain issues remained, encouraged the secretary to conduct further discussions toward an agreement that is in keeping with the interests of the Smithsonian. Referring similarly to previous deliberations, the regents approved in principle the establishment of the National Postal Museum in the City Post Office Building, to be operated by the Smithsonian Institution in cooperation

with the U.S. Postal Service, and authorized the secretary to work toward a detailed agreement for its support and operations.

Other actions at the meeting included the appointment of Mrs. Jeannine Smith Clark as chair of the National Portrait Gallery Commission, the authorization to purchase a townhouse apartment building adjacent to the property of the Cooper-Hewitt Museum, the establishment of three new endowment funds in accordance with several bequests, approval of *The Five-Year Prospectus, Fiscal Years 1990-1994*, authorization for consultative services toward the procurement of special foreign currencies, support for legislation marking the Centennial of the National Zoological Park and providing for adjustments in the salary scales of the Zoological Park Police, approval of a policy with respect to persons residing on Smithsonian property at the Environmental Research Center, authorization for the secretary to investigate the acquisition of a new light industrial warehouse and special purpose space through lease/purchase arrangements, and the appointments of David Driskell, Robert Nooter, Frances Humphrey Howard, Robin Bradley Martin, and Donald M. Stewart to the Commission of the National Museum of African Art, and Charles Parkhurst, Norman Bernstein, Jacob Lawrence, Jacques Lennon, Owen M. Lopez, and Mary Schmidt Campbell to the Commission of the National Museum of American Art.

Reports were discussed on the Institution's agreement to manage the World Wildlife Fund's Minimum Critical Size of Ecosystems Project, the status of the *American Visions* magazine, the status of funds, initiatives to be taken for the enhancement of membership and development activities, problems in setting appropriate salaries for senior staff, major development initiatives, legislative actions and issues, the potential extension of the National Air and Space Museum, African American programming throughout the Institution, strategic planning at the Smithsonian, the policy on a drug-free workplace, the Smithsonian Council's meeting in October 1988, and a wide variety of other status reports.

As a final item in the regents' agenda, the Smithsonian Project Discovery was demonstrated through the use of its computers, video monitors, and laser disc components. On the preceding evening, January 29, 1989, the traditional regents' dinner was hosted by the chancellor and Mrs. Rehnquist in the Supreme Court. Following tributes to the late Mr. Humelsine by Messrs. Adams and Acheson, the chancellor treated the guests to an enlightening glimpse of Supreme Court history as played out through the lives and

work of some of his distinguished predecessors.

The regents' second meeting of the year was held on the morning of May 8. To fill the vacancy created by the death of Mr. Humelsine and to appoint a chairman in his stead, the regents appointed former Senator Charles McC. Mathias, Jr., as chairman of the Personnel Committee and Mrs. Jeannine Smith Clark as a member of that committee. Accepting the recommendation of the Nominating Committee, the board nominated Mrs. Clark and Mr. Samuel C. Johnson to serve additional terms for the statutory period of six years. The Audit and Review Committee reported on its meeting of March 7, noting that Coopers & Lybrand gave the Smithsonian a "clean opinion" on its financial statements for fiscal year 1988 but made several recommendations for management improvements; at the same meeting the Institution's internal auditors presented their annual report of significant audit recommendations. The Investment Policy Committee reported on the status of the endowment portfolio, and the committee's recommendation of a slight increase in the rate of payout from endowment funds was approved by the board for fiscal year 1990.

Mr. Adams brought the regents up to date on certain legislative initiatives and hearings in the Congress, on the status of *Air & Space/Smithsonian* magazine, on plans for the dedication of the Charles McC. Mathias, Jr., Laboratory of the Smithsonian Environmental Research Center on June 1, on a major grant received from the Andrew W. Mellon Foundation for a three-year program of fellowships in terrestrial biology, and on the minimal impact of political and economic difficulties on the activities of the Smithsonian Tropical Research Institute in Panama. After receiving the financial report, the regents voted to establish, as part of the Institution's endowment funds, a quasi-unrestricted fund to be known as the Roy R. Phillips Fund. It was also noted that a contract was signed for the purchase of the Fox House, a townhouse adjacent to the Cooper-Hewitt Museum.

The regents gave careful consideration to a draft Memorandum of Understanding between the Heye Foundation and the Smithsonian, signed on behalf of the Heye Foundation on March 16, 1989, and draft legislation that would implement the Memorandum of Understanding by authorizing the establishment of the National Museum of the American Indian on the Mall in Washington, a storage and conservation facility at the Smithsonian's Museum Support Center, and a branch of the Museum in the Custom House in New York City. Voting affirmatively on three separate motions, the regents (1) recognized that the future use of the present

facility at Audubon Terrace needs to be considered, and the Smithsonian Institution will continue to work with the city of New York and the Heye Foundation on programming and related questions, (2) approved the Memorandum of Understanding and authorized the secretary to execute it, and (3) requested the congressional members of the board to support legislation to establish the museum within the Smithsonian. With these actions completed, the secretary invited the regents to join him for a public signing ceremony and press conference on the east terrace of the National Air and Space Museum (overlooking the site of the proposed museum) following the meeting.

In other actions, the secretary discussed with the regents a variety of possibilities for the establishment of an African American museum within the Smithsonian and the possible implications for the future development of the Anacostia Museum, and he indicated that he will take measured steps toward resolution of these issues. Mr. Adams noted that a site evaluation study has been initiated under contract for the National Air and Space Museum extension. He and his staff described plans laid to enhance the current level of private sector support of the Institution and to identify the prerequisites that could be used to plan a pan-Institutional development campaign. The regents discussed several bills introduced thus far in the First Session of the 101st Congress and expressed concern over their implications for the Smithsonian. Finally, the board accepted the Annual Report of the secretary for fiscal year 1988.

The traditional regents' dinner was held on the preceding evening, May 7, 1989, beginning with a reception in the pavilion of the Arthur M. Sackler Gallery, which was followed by dinner in the pavilion of the National Museum of African Art. Following the dinner Mr. Adams welcomed the guests, and African Art Museum Director Sylvia Williams spoke briefly about her fascination with the art of Africa and provided insights into the museum's two new exhibitions, "Gold of Africa: Jewelry and Ornaments from Ghana, Côte d'Ivoire, Mali, and Senegal" and "Sounding Forms: African Musical Instruments," in which the regents and their guests were encouraged to linger after dinner.

The regents' final meeting of the fiscal year was held on September 18, 1989. After the Nominating Committee reported on its activities, the regents nominated Dr. Homer A. Neal of Michigan and the Honorable R. James Woolsey of Maryland as citizen members of the board for statutory terms of six years. The Audit and Review Committee reported on its June 1 meeting in which it reviewed Coopers & Lybrand's

Benefactors

audit plan for fiscal year 1989, corrective activities with respect to museum shop management and certain banking relationships, and actions taken to close out significant long-standing "open recommendations" of the Smithsonian's Office of the Inspector General. The Investment Policy Committee reported on the status of the endowment funds.

Reporting on a wide variety of recent developments, Mr. Adams briefed the regents on the status of *Air & Space/Smithsonian* magazine, legislative initiatives to establish a National Center for Biological Diversity at the Smithsonian, activities leading to the establishment of the National Museum of the American Indian, possibilities of establishing an African American presence at the Smithsonian, and plans for the renovation of the National Museum of Natural History. The secretary described the evolution of the Smithsonian's Corporate Associate Program, and the regents enthusiastically endorsed his initiatives. He also outlined the need for an organizational and management review, which promises to enable the Institution to meet future challenges most effectively.

Actions of the regents included preliminary consideration of the site selection evaluation for the extension of the National Air and Space Museum, approval of budget revisions for fiscal years 1989 and 1990, and approval of the budget request to the Office of Management and Budget for fiscal year 1991. The regents discussed the draft of the Five-Year Prospectus for fiscal years 1991-1995 and adopted motions requesting amendment of their authority to appoint assistant secretaries to federal executive-level positions, appointing Robert L. McNeil, Stephen Jay Gould, Marta Istomin, and David Levering Lewis to the Commission of the National Portrait Gallery, and approving revised bylaws for the Commission of the Cooper-Hewitt, National Museum of Design.

At the regents' dinner on Sunday evening, September 17, in the S. Dillon Ripley Center, Mr. Adams greeted the guests, Assistant Secretary Freudenheim spoke about the International Gallery's potential as a pan-Institutional exhibition facility, and Dr. Vera Hyatt, curator of the "Caribbean Festival Arts" exhibition, invited the guests to view the exhibition after dinner.

The Smithsonian gratefully acknowledges the support of the individuals, foundations, and corporations listed below, whose gifts, bequests, and contributing memberships aided the work of the Institution during the past fiscal year.

The Smithsonian owes its founding to the generosity of one individual. During most of its history since 1846, the Institution has relied upon a combination of both federal and trust funding to carry out the terms of James Smithson's will. As a trust instrumentality of the United States, the Smithsonian has received federal appropriations for research, exhibition of the national collections, and maintenance of the valuable objects of science, history, and culture entrusted to it.

The trust funds have been equally important, providing the Smithsonian with the flexibility and independence essential to its innovative growth. Such nonfederal funds traditionally have made possible many of the research, acquisition, and educational programs central to the Institution's achievements.

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 Mr. and Mrs. Charles W. Schmidt
 Mr. and Mrs. Edwin Schreiber
 Rev. and Mrs. Alfred R. Shands
 Mrs. David E. Skinner
 Mr. and Mrs. Sanford Slavin
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 Mr. Sydney Stein, Jr.
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Financial Report

Ann R. Leven, Treasurer

Fiscal 1989 proved to be a year of solid financial progress for the Institution. It was marred only by a significant drop in Mall attendance, which precluded visitor-dependent auxiliary activities from meeting their goals.

The Institution concluded the sale of the buildings formerly housing the National Museum of African Art. The proceeds received had been earmarked for already expensed construction costs of the new museum on the Mall. It is a pleasure to report that funding for the Quadrangle facilities is complete.

Operations

Federal appropriations provided \$211,240,000 to fund ongoing operations, almost a 5 percent increase over fiscal 1988. New support was included for molecular systematic programs at both the National Museum of Natural History and the National Zoological Park, the biological diversity program at the Museum of Natural History, and the Smith-

sonian Astrophysical Observatory's conversion of the Multiple Mirror Telescope at Kitt Peak, Arizona, into a single-lens telescope. A meager \$89,000 of the year's appropriation was returned to the Treasury, representing uncommitted salaries and expenses.

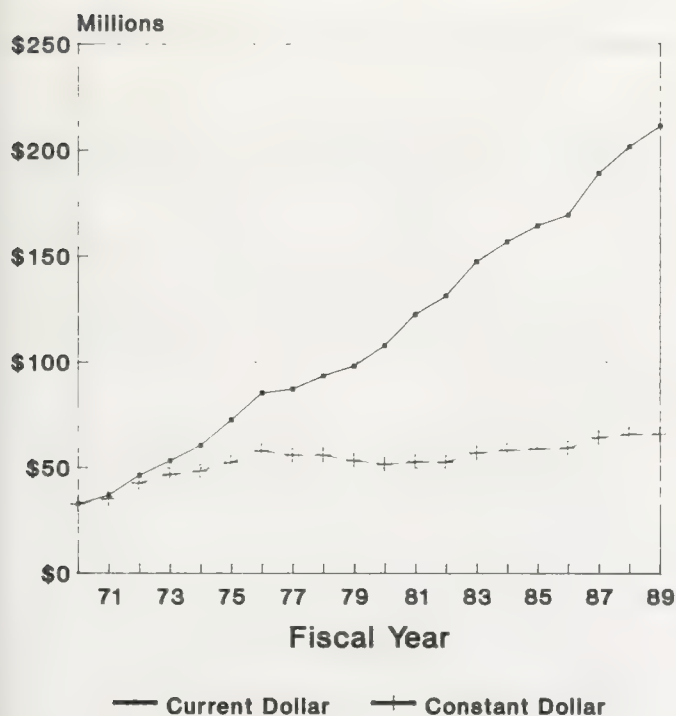
Government agencies and bureaus utilized project grants and contracts with the Smithsonian to fund research primarily at the Smithsonian Astrophysical Observatory and the National Museum of Natural History/National Museum of Man. Funded projects included orbital investigations of comets and asteroids, the establishment and maintenance of an international astronomical computer data base, an exhibition entitled "The First Federal Congress," and a behavioral study of northern mockingbirds.

Nonappropriated income from gifts, grants, endowments, current investments, and revenue-producing activities supplemented federal funds. Unrestricted trust funds were allocated to base support and Institution-wide priorities: \$1,567,000 was allocated for acquisitions, \$3,262,000 for special exhibitions, \$3,015,000 for fellowships, \$2,320,000 for scholarly research, and \$563,000 for educational outreach.

In addition, \$3,000,000 in revenue generated from auxiliary enterprises was transferred to endowment following past practice to strengthen this important asset. The unrestricted trust fund balance was also augmented by \$4,265,000. The Institution achieved its goal of bringing this fund, which serves as working capital, to a comfortable level vis-à-vis the magnitude of our commitments.

The Smithsonian is especially grateful to its many friends in the private sector, whose generosity contributed so importantly to its work. Individuals, foundations, and corporations are listed in the "Benefactors" section. Restricted gifts to the Institution totaled \$17,850,000. Of this sum, \$5,382,000

Federal S & E Funds



Source of Funds	Gross Revenues (\$1,000s)	Net Income (\$1,000s)	Net Income (%)
Federal			
Appropriation	\$211,240	\$211,240	70
Government Grants and Contracts	20,977	20,977	7
All Trust Sources	239,969	70,827	23
Total Available for Operations	\$472,186	\$303,044	100

was specifically designated as endowment by the donor or so designated by the Board of Regents. An additional \$1,230,000 in unrestricted gifts was designated as endowment by the Board of Regents.

The single largest project funded during 1989 was the renovated Visitor Information and Associates' Reception Center in the Castle. Private-sector support was also provided for the traveling exhibition "Inside Active Volcanoes"; the Caribbean Arts Festival, which focused on the cultural richness and intellectual life of the area; and tropical forest ecosystem research.

A much-discussed topic in Washington and within the nonprofit community during the course of the past year was the subject of unrelated business income tax. The Institution is ever mindful of the impact such a tax might have on the availability of nonappropriated funds. Auxiliary activities at the Institution date back to the 1860s and extend the Institution's mission "to increase and diffuse knowledge" through the distribution of educational materials and experiences for the visitor and those more distant from Washington.

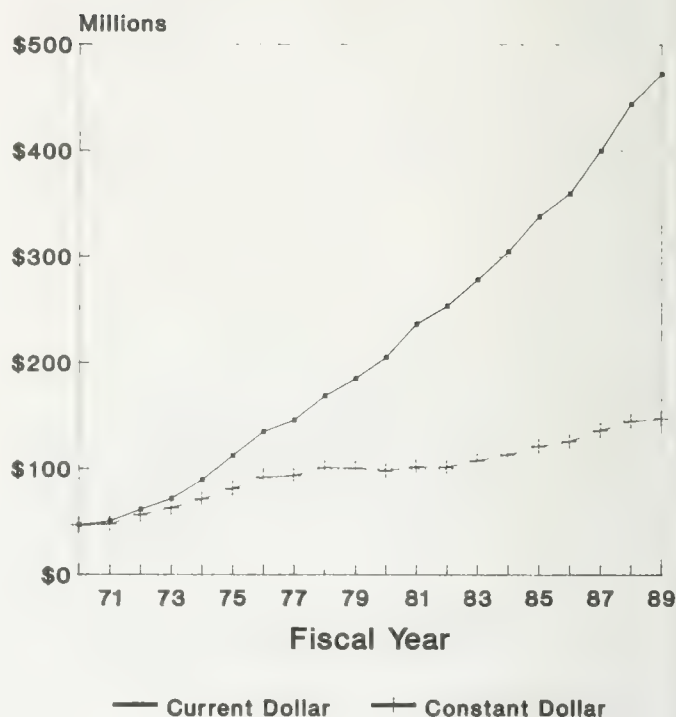
While taxation remained a talking issue, 14 percent less visitation during 1989 on the Mall had a direct impact on revenues. It appears that adverse national publicity on drugs and crime in the Washington area dissuaded many families from visiting. The Museum Shops experienced their first "down" year in many. Restaurant concessions fees were on budget, but not exceeded as had been hoped. All payments to The Riggs National Bank for the National Air and Space Restaurant loan were more than adequately covered and made on a timely basis.

The auxiliary activities appealing to a more national audience did best: the Smithsonian National Associate Program, *Smithsonian* magazine, and the Smithsonian Institution Press. The Press's promotion of the book *Lords of the Air* at year-end significantly enhanced its revenues. The growth of nonappropriated funds over the years has been quite impressive. However, it must be pointed out that in constant dollar terms, Smithsonian funding has just kept even with inflation and the costs of new program initiatives.

Financial Management Activities

Improving financial and support systems continued to be the number one priority within the Treasurer's Office. The development and implementation of several new systems were accomplished during the year. The most significant of

Total Operating Funds



these is the Personnel Cost Projection System, a joint project of the Office of Financial Management and Planning, the Office of Accounting and Financial Services, and the Office of Planning and Budget.

The Office of Planning and Budget reports to the assistant secretary for administration. Under the leadership of its director, Nancy D. Suttentfield, the office initiated first steps at strategic planning in conjunction with Institutional preparations for the 1990 budget. Mrs. Suttentfield has likewise been instrumental, since coming to the Smithsonian in 1986, in refining existing budget policies and procedures.

Using federal funds, the Institution purchased new accounting software; in fiscal 1990, this package will be modified to fit the Smithsonian's unique needs. Anticipating this, considerable work was done within the Treasurer's Office to codify existing fiscal policies and procedures.

During the course of fiscal 1989, the Treasurer's Office assumed oversight of the Office of Sponsored Projects. The office was restructured, office systems were updated, and work begun on outreach within the Institution. The goal is to

enhance the base of sponsored research at the Smithsonian. Ardelle Foss was hired as director; Dell comes to the Institution from Brown University, where she headed a similar office.

The Treasurer oversees four revenue-producing activities through the Business Management Office: Museum Shops, Mail Order, Product Development and Licensing, and Concessions. Here, too, substantive effort was expended upon improving support systems, most notably in the Museum Shops and Mail Order. The Office of the Inspector General, working closely with the new deputy director, Museum Shops, Edward F. Sullivan, was particularly helpful in the development of new policies and procedures with respect to retail sales.

Sadly, the Treasurer must report the death of Samuel J. Greenberg on October 4, 1989. Sam waged a valiant campaign against cancer during most of his tenure as director, Museum Shops. Nonetheless, during those years he enhanced the shops' selection of merchandise, emphasizing its Smithsonian relatedness and educational value. All shops were refurbished; a new efficient warehouse was leased. With Sam's unremitting focus on customer service, the shops' contribution to the Institution grew from \$620,000 in 1982 to \$3,100,000 in 1989.

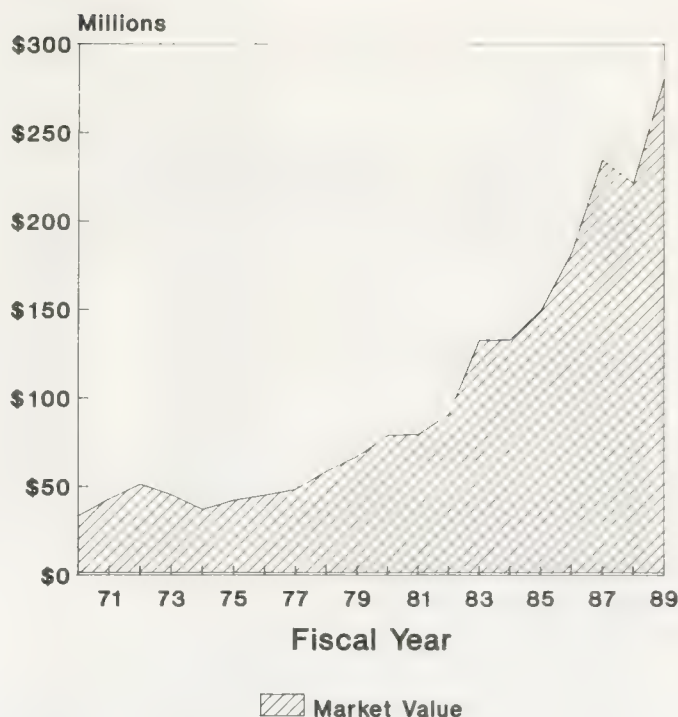
Endowment

The Smithsonian Endowment fund was valued at \$279,665,000 on September 30, 1989. This represents an increase of 27 percent from the same date last year, and a 16 percent rate of growth over the past five years. The Institution changed its basis of recording investment transactions from settlement date to trade date. The strong market experienced during fiscal 1989 helped increase the Smithsonian endowment well above pre-"Black Monday" levels to a new high. The guidelines set by the Regents Investment Policy Committee require a South Africa-free portfolio.

The Institution's managers continue to be two balanced managers, Fiduciary Trust Company of New York, and Miller, Anderson and Sherrerd; and one equity manager, Batterymarch Financial Management. The asset mix as of September 30, 1989, was 67 percent equities, 23 percent fixed income, and 10 percent cash or cash equivalents.

The Institution utilizes the "total return" approach to investment management of its consolidated endowment funds. As to the use of principal, 39 percent is restricted; 61 percent is unrestricted. Of the resulting income, 54 percent

Total Endowment Funds

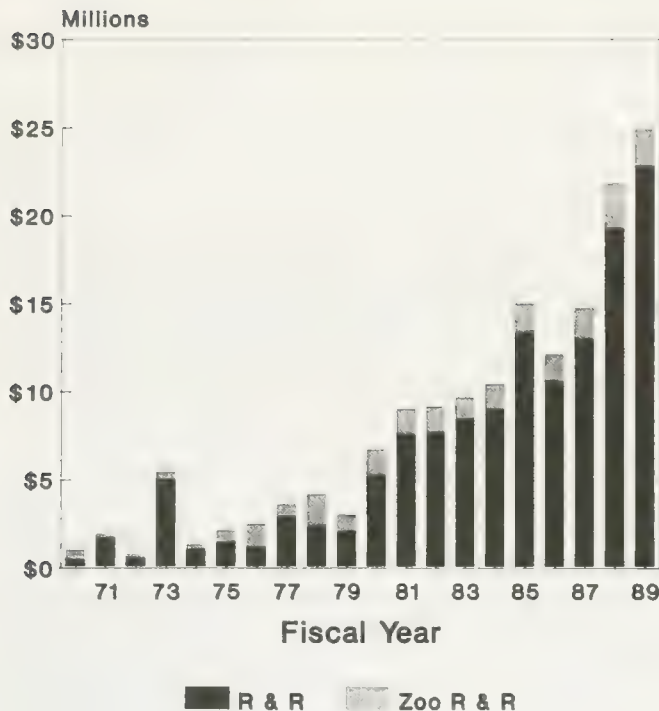


is restricted as to purpose; 46 percent is unrestricted.

Regent Barnabas McHenry chairs the Investment Policy Committee of the Board of Regents. The loss of Regent Carlisle H. Humelsine, who passed away in January 1989, was deeply felt by the Investment Policy Committee and the Institution as a whole. Mr. Humelsine had served from November 1984 to April 1986 as acting chairman of the committee, in addition to his chairmanship of the Board of Regents Executive Committee. Regent Norman Y. Mineta, U.S. Representative from California, agreed to serve on the committee.

Also during the year, William R. Salomon resigned after 17 years of valued committee service. He was honored by committee members with the presentation of a Smithsonian Society Medal. Mr. John W. English, vice president and chief investment officer of The Ford Foundation, joined the committee. The Institution is indebted to Donald Moriarty, Charles H. Mott, Thomas J. Watson, and Jane Mack Gould for their continuing service.

R & R Appropriations



Construction and Plant Funds

In addition to its appropriation for salaries and other operating expenses, the Institution receives federal support for the restoration and renovation of its facilities. In fiscal 1989, \$20,735,000 was appropriated for work on fire detection and suppression systems, utilities, facade restoration and replacement, and routine repairs. Appropriations for other construction activities included \$2,020,000 for major alterations and modifications, as well as \$750,000 for construction planning.

Also, \$2,700,000 was provided for a new Smithsonian Tropical Research Institute facility on Barro Colorado Island; \$3,185,000 was provided for the construction of the Whipple Base Camp to serve the Smithsonian Astrophysical Observatory operations on Kitt Peak in Arizona. A separate appropriation of \$5,305,000 allowed the National Zoological Park to continue projects in its master construction plan.

Trust funds were used for the purchase of a mixed-use townhouse adjacent to the Cooper-Hewitt Museum/National Museum of Design.

Audit Activities

The Institution's funds, federal and nonappropriated, are audited annually by an independent public accounting firm. Early in 1989 the Regents Audit and Review Committee issued a Request for Proposal for audit services. Coopers & Lybrand at that time had been our external auditor for ten years. After an exhaustive review of all proposals received,

Coopers & Lybrand was reappointed.

Coopers & Lybrand's unqualified report for fiscal year 1989 is reprinted on the following pages. In addition to the annual audit, during the year, consultants from Coopers & Lybrand undertook an analysis of the Institution's overhead system. The firm also presented a staff seminar on retail inventory management.

The Smithsonian's internal audit staff, transferred to the newly formed Office of the Inspector General, regularly reviews the Institution's financial activities and fiscal systems, assists the outside auditors, and does special projects as required. The Defense Contract Audit Agency audits grants and contracts received from federal agencies and monitors allocated administrative costs.

The Audit and Review Committee of the Board of Regents, chaired by Regent David C. Acheson, met three times during the fiscal year pursuant to its fiduciary responsibilities under legislation pertinent to the Institution, and the bylaws of the Board of Regents. In addition to reviewing the 1988 audit performed by Coopers & Lybrand, and the 1989 audit plan, the committee received reports from the Office of the Inspector General on a wide variety of institutional programs and procedures.

Related Organizations

The National Gallery of Art, the John F. Kennedy Center for the Performing Arts, and the Woodrow Wilson International Center for Scholars were established by Congress within the Institution. Each organization is administered by its own board of trustees and reports independently on its financial status. The Smithsonian provides the Woodrow Wilson International Center for Scholars with certain fiscal, administrative, and other support services plus office space on a reimbursement basis.

Administrative services are provided by the Institution on a contract basis for Reading Is Fundamental. Office space continued to be provided for Visions Foundation, Inc., a nonprofit organization that publishes *American Visions* magazine, through July 1989. The Institution assisted Visions in acquiring their own office space. An independent nonprofit organization, the Friends of the National Zoo, operates under a concessions contract; proceeds from Friends activities accrue to the Zoo.

Smithsonian Institution Operating Funds

FISCAL YEARS 1985, 1986, 1987, 1988, 1989

(In \$1,000,000s)

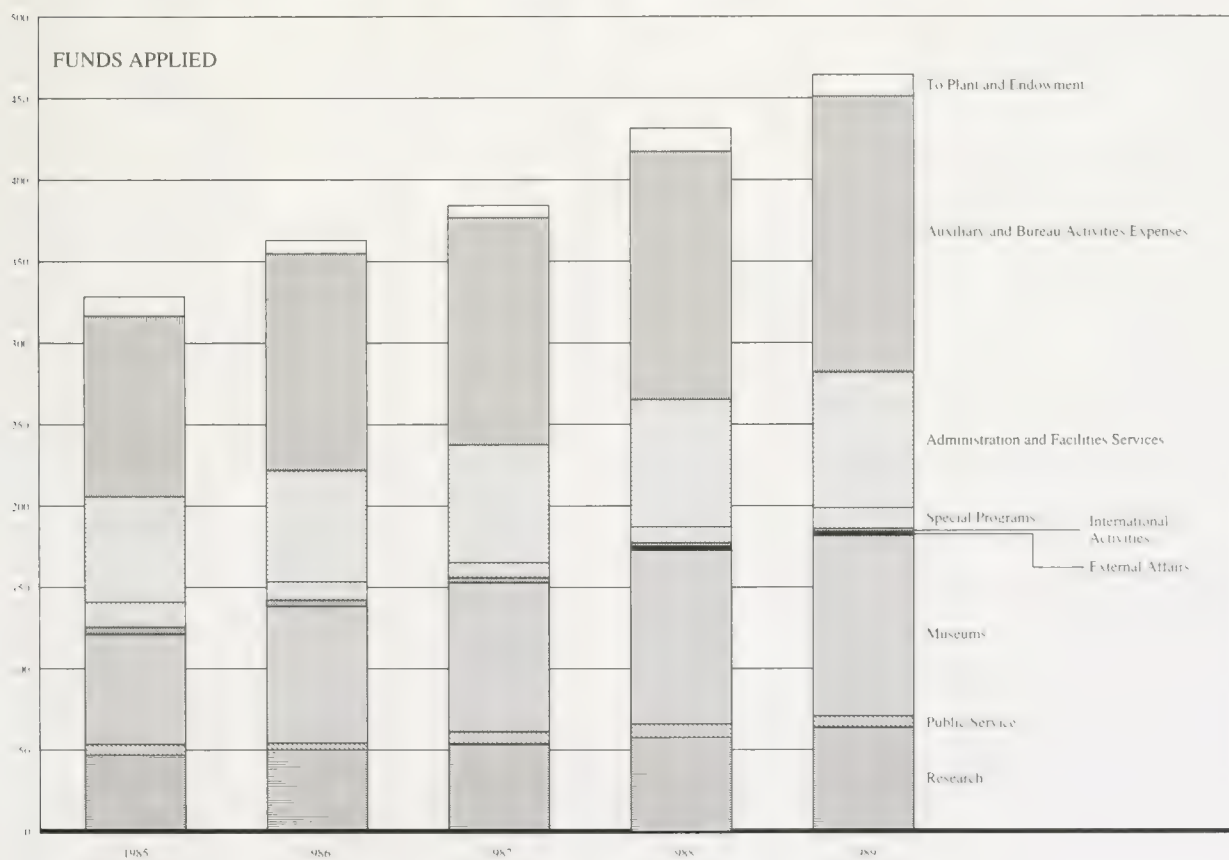
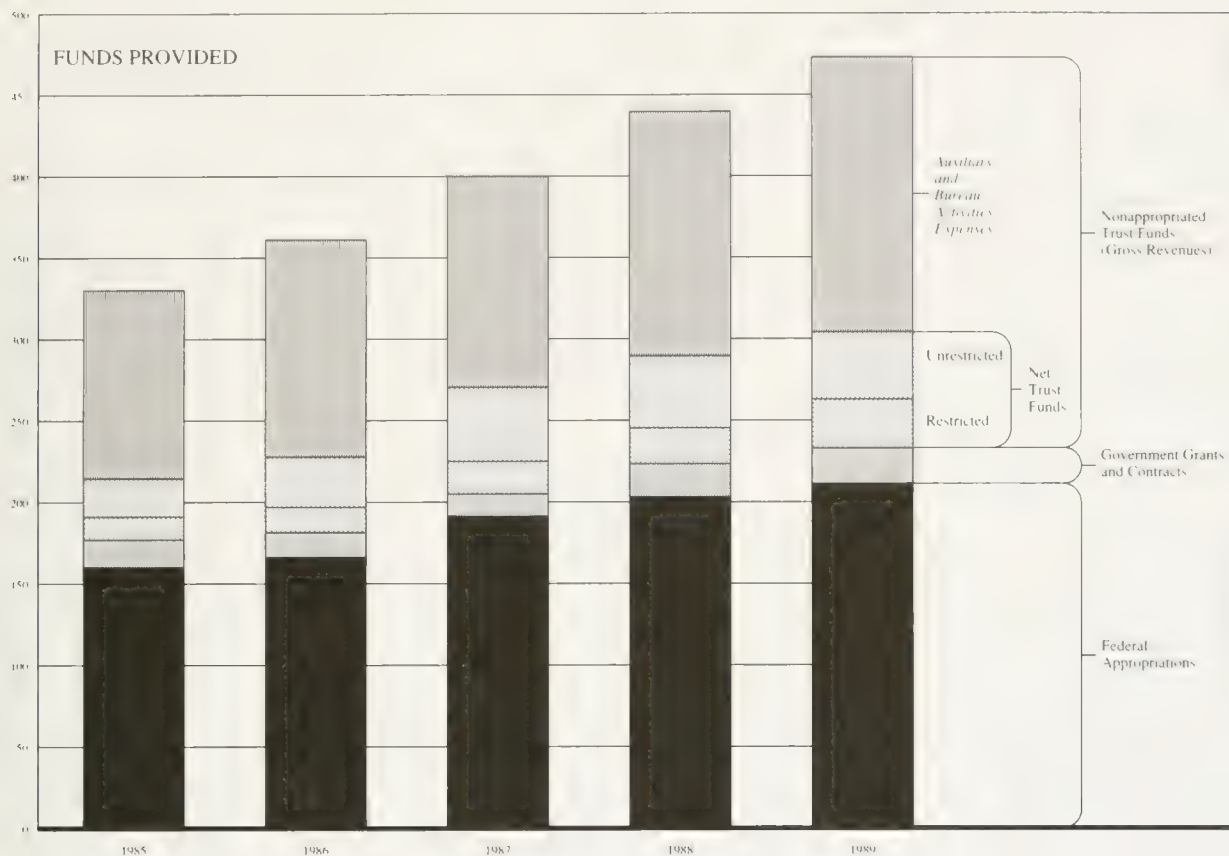


Table 1. Financial Summary (in \$1,000s)

	FY 1988	FY 1989
INSTITUTIONAL OPERATING FUNDS		
FUNDS PROVIDED:		
Federal Appropriations—Salaries & Expenses	\$ 201,432	\$ 211,240
Government Grants & Contracts	17,438	20,977
Nonappropriated Trust Funds:		
For Restricted Purposes	26,332	30,412
For Unrestricted & Special Purposes:		
Auxiliary & Bureau Activities Revenues—Gross	186,565	195,786
Less Related Expenses	(157,410)	(169,142)
Auxiliary & Bureau Activities Net Revenue	29,155	26,644
Investment, Gift, & Other Income	12,255	13,771
Total Net Unrestricted & Special Purpose Revenue	41,410	40,415
Total Nonappropriated Trust Funds—Gross	225,152	239,969
—Net	67,742	70,827
Total Operating Funds Provided—Gross	444,022	472,186
—Net	286,612	303,044
FUNDS APPLIED:		
Research	60,960	67,419
Less SAO Overhead Recovery	(2,731)	(3,807)
Museums	104,285	111,020
Public Service	6,196	7,104
External Affairs	1,534	2,347
International Activities	1,217	2,094
Special Programs	11,635	12,748
Associates & Business Management	117	525
Administration—Federal*	16,258	17,497
Nonappropriated Trust Funds	12,361	12,444
Less Smithsonian Overhead Recovery	(9,695)	(10,825)
Facilities Services	60,651	63,228
Total Operating Funds Applied	262,788	281,794
Transfers (Nonappropriated Trust Funds)		
Unrestricted Funds—To Plant	178	—
—To Endowment	6,311	6,189
Restricted Funds—To Endowment	10,033	6,641
Total Operating Funds Applied & Transferred Out	279,310	294,624
CHANGES IN FUND BALANCES:		
Nonappropriated Trust—Restricted Purpose	2,807	4,371
—Unrestricted—General Purpose	3,860	4,265
—Special Purpose	635	(586)
Appropriated**	—	370
Total	\$ 7,302	\$ 8,420
YEAR-END BALANCES—NONAPPROPRIATED TRUST FUNDS:		
Restricted Purpose	\$ 16,576	\$ 20,948
Unrestricted—General Purpose	9,036	13,300
—Special Purpose	34,394	33,808
Total	\$ 60,006	\$ 68,056
OTHER FEDERAL APPROPRIATIONS***		
Canal Zone Biological Area Fund	\$ 143	\$ 101
Construction	28,719	34,695
Total Federal Appropriation (Including S & E above)	\$ 230,294	\$ 246,036

*Includes unobligated funds returned to Treasury: FY 1988—\$118 thousand; FY 1989—\$89 thousand.

**Effective FY 1989, the fund balance represents multiple-year funding for instrumentation.

***Excludes \$1,500 thousand received in FY 1988 and \$1,992 thousand received in FY 1989 from the Department of State for research projects in India.

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1989
(Excludes Canal Zone Biological Area Fund, Plant Funds, and Endowments) (in \$1,000s)

	Federal Funds	Total Non- appropriated Funds	Nonappropriated Trust Funds				
			Unrestricted			Restricted	
			General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
FUNDS BALANCES—Beginning of Year	\$ —	\$ 60,006	\$ 9,036	\$ —	\$ 34,394	\$ 16,576	\$ —
FUNDS PROVIDED:							
Federal Appropriations	211,240	—	—	—	—	—	—
Investment Income	—	16,947	7,463	—	1,486	7,998	—
Government Grants and Contracts	—	20,977	—	—	—	—	20,977
Gifts	—	24,624	80	5,391	1,375	17,778	—
Sales and Membership Revenue	—	190,395	—	181,720	8,675	—	—
Other	—	8,003	998	—	2,369	4,636	—
Total Provided	211,240	260,946	8,541	187,111	13,905	30,412	20,977
Total Available	211,240	320,952	17,577	187,111	48,299	46,988	20,977
FUNDS APPLIED:							
<i>Research:</i>							
Assistant Secretary	1,203	818	315	—	18	123	362
Astrophysical Observatory	11,586	22,970	3,704	—	2,309	216	16,741
Less Overhead Recovery	—	(3,807)	(3,807)	—	—	—	—
Tropical Research Institute	5,777	1,754	265	—	538	61	890
Environmental Research Center	1,426	622	99	—	111	30	382
National Zoological Park	14,190	1,286	144	—	616	318	208
Smithsonian Archives	592	225	201	—	24	—	—
Smithsonian Libraries	5,150	463	424	—	38	1	—
Total Research	39,924	24,331	1,345	—	3,654	749	18,583
<i>Museums:</i>							
Assistant Secretary	1,699	490	274	—	163	43	10
Museum Programs	—	89	9	—	89	(9)	—
National Museum of Natural History/Museum of Man	26,357	5,099	331	—	1,562	2,292	914
National Air & Space Museum	9,594	7,725	414	—	4,699	2,296	316
National Museum of American History	14,446	4,399	152	—	1,520	2,711	16
National Museum of American Art	5,545	1,956	75	—	1,054	827	—
National Portrait Gallery	4,125	685	20	—	228	320	117
Hirshhorn Museum and Sculpture Garden	3,453	2,701	14	—	838	1,849	—
Center for Asian Art	4,296	3,464	88	—	249	3,127	—
Archives of American Art	1,062	1,172	98	—	52	1,022	—
Cooper-Hewitt Museum	1,288	3,469	869	—	1,573	1,018	9
National Museum of African Art	3,503	422	76	—	277	69	—
Anacostia Neighborhood Museum	905	53	29	—	24	—	—
Conservation Analytical Laboratory	2,526	43	—	—	36	7	—
Office of Exhibits Central	1,886	39	—	—	39	—	—
Traveling Exhibition Service	665	2,940	304	—	2,135	437	64
Total Museums	81,350	34,746	2,753	—	14,538	16,009	1,446

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1989
(Excludes Canal Zone Biological Area Fund, Plant Funds, and Endowments) (in \$1,000s) (continued)

	Federal Funds	Total Non- federal Funds	Nonfederal Funds				
			Unrestricted			Restricted	
			General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
<i>Public Service:</i>							
Assistant Secretary	319	984	675	—	330	(21)	—
Telecommunications	250	1,701	609	—	82	972	38
Visitor Information and Associates'							
Reception Center	163	1,080	975	—	20	85	—
Office of Public Affairs	659	740	667	—	73	—	—
Smithsonian Press	1,214	18,861	(2)	18,801	55	7	—
Total Public Service	2,605	23,366	2,924	18,801	560	1,043	38
<i>External Affairs:</i>							
Assistant Secretary	—	751	582	—	104	57	8
Development Office	—	1,432	1,429	—	(1)	4	—
Office of Special Events	—	164	164	—	—	—	—
Total External Affairs	—	2,347	2,175	—	103	61	8
International Activities	740	1,354	546	—	557	180	71
<i>Special Programs:</i>							
American Studies & Folklife Program	918	2,601	819	—	561	390	831
International Environmental Science Program	757	—	—	—	—	—	—
Academic & Educational Program	1,187	2,945	636	—	2,117	192	—
Museum Support Center	4,405	—	—	—	—	—	—
Total Special Programs	7,267	5,546	1,455	—	2,678	582	831
Associate Programs	—	95,006	399	94,466	110	31	—
Business Management	—	48,640	—	48,644	—	(4)	—
Administration	17,243	13,728	11,424	—	2,184	120	—
Less Overhead Recovery	—	(10,825)	(10,825)	—	—	—	—
Facilities Services	61,652	1,827	1,221	—	606	—	—
<i>Transfers Out/(In):</i>							
Treasury	89	—	—	—	—	—	—
Programs	—	—	7,712	—	(7,712)	—	—
Net Auxiliary Activities	—	—	(23,740)	23,740	—	—	—
Other Designated Purposes	—	—	2,178	1,460	(4,267)	629	—
Plant	—	—	—	—	—	—	—
Endowment	—	12,830	4,709	—	1,480	6,641	—
Total Transfers	89*	12,830	(9,141)	25,200	(10,499)	7,270	—
Total Funds Applied	210,870	252,896	4,276	187,111	14,491	26,041	20,977
FUND BALANCES—End of Year***	\$ 370	\$ 68,056	\$ 13,301	\$ —	\$ 33,808	\$20,947	\$ —

* Unobligated funds returned to Treasury.

** Includes Collection Acquisition, Scholarly Studies, Educational Outreach, and Special Exhibitions Programs.

*** The fund balance for federal funds represents multiple-year funding for instrumentation.

Table 3. Government Grants and Contracts—Expenditures (in \$1,000s)
Fiscal Years 1988 and 1989

Government Agencies	FY 1988	FY 1989
Agency for International Development	\$ 465	\$ 0
Department of Commerce	24	12
Department of Defense	1,727	966
Department of Energy	509	465
Department of Health and Human Services	320	461
Department of Interior	984	1,130
National Aeronautics and Space Administration*	11,940	15,992
National Science Foundation**	562	834
Other	907	1,117
Total	<u>\$17,438</u>	<u>\$20,977</u>

* Includes \$629 thousand (FY 1988) and \$712 thousand (FY 1989) in subcontracts from other organizations receiving prime contract funding from NASA.

** Includes \$106 thousand (FY 1988) and \$187 thousand (FY 1989) in NSF subcontracts from the Chesapeake Research Consortium.

Table 4. Auxiliary Activities, Fiscal Years 1988 and 1989 (in \$1,000s)

	Sales and Membership Revenue	Gifts	Less Cost of Sales	Gross Revenue	Expenses	Net Revenue* (Loss)
FY 1988	<u>\$172,507</u>	<u>\$5,119</u>	<u>\$95,657</u>	<u>\$81,969</u>	<u>\$53,866</u>	<u>\$28,103</u>
FY 1989:						
Associate Programs	\$105,131	\$5,391	\$70,764	\$39,758	\$23,702	\$16,056
Business Management:						
—Museum Shops/Mail Order	51,241	—	23,157	28,084	21,898	6,186
—Concessions	3,401	—	—	3,401	2,701	700
—Other	829	—	—	829	888	(59)
Smithsonian Press	21,118	—	6,044	15,074	12,757	2,317
Total FY 1989	<u>\$181,720</u>	<u>\$5,391</u>	<u>\$99,965</u>	<u>\$87,146</u>	<u>\$61,946</u>	<u>\$25,200</u>

* Before revenue-sharing transfers to participating Smithsonian bureaus of \$1,568 thousand (FY 1988) and \$1,460 thousand (FY 1989).

Table 5. Endowment and Similar Funds, September 30, 1989 (in \$1,000s)

	Book Value	Market Value
ASSETS:		
<i>Pooled Consolidated Endowment Funds:</i>		
Cash and Equivalents	\$ 3,861	\$ 3,861
Mutual Funds	27,488	29,758
Interfund Receivable	1,741	1,741
U.S. Government and Government Obligations	30,089	30,396
Bonds	30,059	30,282
Convertible Bonds	5,238	5,475
Stocks	137,892	176,668
Receivable for Securities Sold	8,501	8,501
Total Pooled Fund	<u>244,869</u>	<u>286,682</u>
<i>Nonpooled Endowment Funds:</i>		
Mutual Funds	1,141	1,181
Loan to U.S. Treasury in Perpetuity	1,123	1,146
Receivables	488	488
Land (Net of \$3,050 of expense)	237	237
Investments in Charitable Trusts	546	581
Total Nonpooled Funds	<u>3,535</u>	<u>3,633</u>
Total Assets	<u>\$248,404</u>	<u>\$290,315</u>
LIABILITIES AND FUND BALANCES:		
LIABILITIES:		
Payables for Securities Purchased	\$ 10,069	\$ 10,069
Deferred Revenue—Charitable Trusts	547	581
Total Liabilities	<u>10,616</u>	<u>10,650</u>
FUND BALANCE:		
Unrestricted Purpose: True Endowment	6,638	8,450
Quasi Endowment	104,158	118,944
Total Unrestricted Purpose	<u>110,796</u>	<u>127,394</u>
Restricted Purpose: True Endowment	83,991	101,849
Quasi Endowment	43,001	50,422
Total Restricted Purpose	<u>126,992</u>	<u>152,271</u>
Total Fund Balances	<u>237,788</u>	<u>279,665</u>
Total Liabilities and Fund Balances	<u>\$248,404</u>	<u>\$290,315</u>

Table 5A. Market Values of Endowment and Similar Funds (in \$1,000s)

Fund	9/30/85	9/30/86	9/30/87	9/30/88	9/30/89
Unrestricted	\$ 66,543	\$83,209	\$108,925	\$101,432	\$127,394
Freer	34,066	39,570	50,380	44,228	53,731
Other Restricted	47,979	58,382	74,816	75,169	98,540
Total	<u>\$148,588</u>	<u>\$181,161</u>	<u>\$234,121</u>	<u>\$220,829</u>	<u>\$279,665</u>

Table 6. Changes in Pooled Consolidated Endowment—Fund Balances at Market (in \$1,000s)

	Unrestricted	Restricted		Total
		Freer	Other	
Market Value—10/1/88	\$100,167	\$44,228	\$73,747	\$218,142
<i>Changes:</i>				
Gifts	35	—	1,072	1,107
Transfer of Excess Yield (Net of Below)				
Interest and Dividends*	5,359	2,346	4,148	11,853
Income Paid Out	(3,420)	(1,498)	(2,643)	(7,561)
Transfers of Other Income	4,230	—	4,927	9,157
Market Value Appreciation	19,749	8,655	15,511	43,915
Market Value—9/30/89**	<u>\$126,120</u>	<u>\$53,731</u>	<u>\$96,762</u>	<u>\$276,613</u>

* Income earned, less managers' fees of \$953 thousand.

** Nonpooled Endowment Funds have a market value of \$3,052 thousand for a total endowment market value of \$279,665 thousand.

Table 7. Endowment Funds, September 30, 1989

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
UNRESTRICTED PURPOSE—TRUE:				
Avery Fund*	\$ 223,963	\$ 290,383	\$ 8,819	\$ 0
Higbee, Harry, Memorial	80,720	101,702	2,835	0
Hodgkins Fund*	332,588	375,844	16,493	0
Morgan, Gilbert B. and Betty J. Memorial Fund	36,339	40,164	814	0
Morrow, Dwight W.	401,367	530,643	14,789	0
Mussinani, Alfred	122,974	155,183	4,325	0
Olmsted, Helen A.	4,165	5,417	151	0
Poore, Lucy T. and George W.*	888,621	1,168,682	33,955	0
Porter, Henry Kirke, Memorial	1,483,442	1,959,470	54,611	0
Sanford, George H.*	6,112	7,631	270	0
Smithson, James	739,737	761,132	49,300	0
Walcott, Charles D. and Mary Vaux, Research (Designated)	2,317,942	3,053,886	85,113	62,816
Subtotal	6,637,970	8,450,137	271,475	62,816
UNRESTRICTED PURPOSE—QUASI:				
Ettl, Charles H. Fund	1,049,144	1,172,113	28,682	0
Forrest, Robert Lee	5,333,975	5,905,040	164,576	0
General Endowment*	82,510,855	94,422,080	2,563,995	0
Goddard, Robert H.	42,221	46,764	1,303	0
Habel, Dr. S.*	683	703	46	0
Hart, Gustavus E.	2,844	3,500	98	0
Henry, Caroline	7,031	8,631	241	0
Henry, Joseph and Harriet A.	282,255	345,218	9,621	0
Heys, Maude C.	514,024	574,592	16,014	0
Hinton, Carrie Susan	141,800	168,087	4,685	0
Koteen, Dorothy B.	183,003	190,916	1,774	0
Lambert, Paula C.	256,938	308,377	8,595	0
Medinus, Grace L.	5,097	5,719	159	0
O'Dea, Laura I.	171,442	196,346	4,104	0
Phillips, Roy R.	718,555	789,633	14,641	0
Rhees, William Jones*	3,539	4,176	147	0
Safford, Clara Louise	236,455	268,387	7,480	0
Smithsonian Bequest Fund*	1,604,237	1,737,607	43,413	0
Taggart, Ganson	2,497	3,270	91	0
Abbott, William L. (Designated)	661,820	811,450	22,616	72,455
Barstow, Frederic D. (Designated)	5,538	6,782	189	5,107
Hirshhorn Museum Acquisition Fund (Designated)	3,705,659	4,184,064	116,612	204,314
Lindbergh Chair of Aerospace History (Designated)	2,462,903	2,810,408	78,327	102,202
Lindbergh, Charles A. (Designated)	40,346	45,248	1,261	5,686
Lyon, Marcus Ward, Jr. (Designated)	21,278	24,180	674	6,570
Smithsonian Agency Account (Designated)	33,312	35,940	986	0
Smithsonian Press Scholarly Books Fund (Designated)	1,609,497	1,969,425	54,889	77,090
Smithsonian Tropical Research Institute Endowment Fund (Designated)	1,405,627	1,719,964	47,936	83,765
Webb, James E., Fellowship (Designated)	1,145,391	1,185,486	33,040	108,637
Subtotal	104,157,966	118,944,106	3,226,195	665,826
Total Unrestricted Purpose	\$110,795,936	\$127,394,243	\$ 3,497,670	\$ 728,642

Table 7. Endowment Funds, September 30, 1989 (continued)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
RESTRICTED PURPOSE—TRUE:				
Aitken, Annie Laurie, Endowment Fund	\$ 267,872	\$ 329,399	\$ 9,181	\$ 16,877
Arthur, James	199,894	265,782	7,407	15,632
Baird, Spencer Fullerton	180,182	237,582	6,622	8,409
Barney, Alice Pike, Memorial	143,281	190,461	5,308	48,042
Batchelor, Emma E.	169,263	197,011	5,491	121,015
Beauregard, Catherine, Memorial	217,228	266,152	7,418	84,758
Bergen, Charlotte V.	17,967	19,670	548	3,104
Brown, Roland W.	160,112	197,470	5,504	8,705
Burch, George, Fellowship in Theoretic Medicine and Affiliated Theoretic Sciences Fund	1,616,743	1,726,076	88,300	11,705
Canfield, Fredrick A.	210,703	292,831	8,161	141
Casey, Thomas Lincoln	69,602	85,328	2,378	6,323
Chamberlain, Frances Lea	140,682	187,008	5,212	32,061
Cooper Fund for Paleobiology	182,984	201,104	4,995	137
Division of Mammals Curators Fund	10,098	12,051	336	5,985
Drake Foundation	917,217	1,080,477	29,992	186,262
Drouet, Francis and Louderback, Harold B. Fund	288,710	317,592	8,851	52,314
Dykes, Charles, Bequest	268,091	323,361	9,012	44,386
Eickemeyer, Florence Brevoort	54,288	72,156	2,011	7,736
Forbes, Edward Waldo	845,374	917,484	23,259	72,282
Freer, Charles L.	43,894,586	53,731,030	1,878,028	2,647,619
Grimm, Sergei N.	151,855	168,343	4,692	41,628
Groom, Barrick W.	154,959	169,459	4,723	22,416
Guggenheim, Daniel and Florence	600,975	687,496	19,161	79,476
Hamilton, James*	5,528	6,389	248	3,328
Hammond, John, Performance Series Fund	250,844	249,678	580	580
Henderson, Edward P., Meteorite Fund	119,619	118,779	3,310	3,166
Hewitt, Eleanor G., Repair Fund	36,677	43,224	1,205	1,791
Hewitt, Sarah Cooper	216,734	255,134	7,111	8,033
Hillyer, Virgil	36,498	44,747	1,247	19,534
Hitchcock, Albert S.	7,968	10,647	297	738
Hodgkins Fund*	136,531	140,479	6,721	15,088
Hrdlicka, Ales and Marie	266,833	330,888	9,222	15,941
Hughes, Bruce	95,698	127,262	3,547	18,674
Johnson, Seward, Trust Fund for Oceanography	18,195,889	22,347,530	622,837	487,986
Kellogg, Remington, and Marguerite, Memorial	235,661	270,686	7,478	16,088
Kramar, Nada	14,464	17,395	485	6,401
Maxwell, Mary E.	98,056	130,391	3,634	54,879
Milliken, H. Oothout, Memorial	1,080	1,270	35	184
Mineral Endowment	494,359	586,824	16,355	201
Mitchell, William A.	67,302	80,108	2,233	545
Nelms, Henning Endowment Fund	211,910	211,325	5,915	13,098
Nelson, Edward William	113,647	147,657	4,115	2,821
Petrocelli, Joseph, Memorial	37,150	49,459	1,378	20,246
Reid, Addison T. *	113,743	136,461	4,112	9,364
Ripley, S. Dillon and Mary Livingston	162,483	185,780	5,071	0
Roebbing Fund	601,145	797,634	22,230	965
Rollins, Miriam and William	1,224,905	1,521,470	42,063	13,028
Sims, George W.	138,607	152,100	4,029	8,285
Sprague Fund	7,747,313	9,096,140	251,473	129,420
Springer, Frank	89,832	119,025	3,317	32,937
Stern, Harold P., Memorial	967,812	1,129,599	31,075	214,009
Stevenson, John A., Mycological Library	26,617	32,518	906	3,966
Stuart, Mary Horner	389,583	413,163	11,515	0

Table 7. Endowment Funds, September 30, 1989 (continued)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Walcott, Charles D. and Mary Vaux, Research	798,251	977,282	38,170	19,629
Walcott Research Fund, Botanical Publications	291,355	402,585		19,881
Williston, Samuel Wendell Diptera Research	29,689	33,464	819	9,345
Zerbee, Frances Brinckle	4,720	6,259	174	7,122
Subtotal	83,991,169	101,848,675	3,249,497	4,674,286
RESTRICTED PURPOSE—QUASI:				
Armstrong, Edwin James	19,221	22,237	610	0
Au Panier Fleuri	99,266	110,135	3,070	2,104
Bacon, Virginia Purdy	470,619	552,774	15,406	76,047
Becker, George F.	812,224	956,748	26,665	12,072
Denghausen, Luisita L. and Franz H. Fund	4,018,003	4,656,039	108,140	111,519
Desautels, Paul E.	53,776	66,626	1,934	606
Gaver, Gordon	9,032	10,462	242	2,923
Hachenberg, George P. and Caroline	23,238	29,082	811	6,226
Hanson, Martin Gustav and Caroline R.	49,346	60,485	1,686	13,862
Hirshhorn Collections Endowment Fund	4,997,039	5,328,430	132,600	214,850
Hirshhorn, Joseph H., Bequest Fund	2,490,816	2,756,008	158,436	530,722
The Holenia Trust Fund	4,780,838	5,629,181	162,219	176,558
Hunterdon Endowment	16,378,649	19,874,803	553,921	275,489
ICBP Endowment	1,035,505	1,165,173	32,467	43,259
ICBP Conservation Endowment	222,169	247,631	6,881	15,901
Johnson, E. R. Fenimore	39,513	44,784	1,248	8,688
Loeb, Morris	487,742	599,880	16,719	48,488
Long, Annette E. and Edith C.	2,763	3,705	103	898
Myer, Catherine Walden	112,160	137,484	3,832	29,576
Noyes, Frank B.	5,558	6,929	193	4,479
Noyes, Pauline Riggs	46,757	51,898	1,446	3,596
Pell, Cornelia Livingston	41,330	50,755	1,415	7,403
Ramsey, Adm. and Mrs. Dewitt Clinton*	950,282	1,172,522	32,921	44,965
Rathbun, Richard, Memorial	59,244	72,723	2,027	23,115
Roebbing Solar Research	130,995	156,356	4,358	11,388
Ruef, Bertha M.	154,028	174,523	4,864	2,410
Schultz, Leonard P.	93,252	106,676	2,547	22,072
Seidell, Atherton	3,217,037	3,779,939	105,349	532,196
Smithsonian Agency Account	1,429,055	1,652,655	47,075	12,315
Strong, Julia D.	55,676	68,336	1,905	9,511
Witherspoon, Thomas A., Memorial	715,639	876,838	24,438	140,986
Subtotal	43,000,772	50,421,817	1,455,529	2,384,224
Total Restricted Purpose	126,991,941	152,270,492	4,705,026	7,058,510
TOTAL ENDOWMENT FUNDS	\$237,787,877	\$279,664,735	\$ 8,202,696**	\$ 7,787,152

Invested all or in part in U.S. Treasury or other nonpooled investments.

** Income on investments; does not include \$344,425 of interest income, which is included in unexpended balances.

**Table 8. Construction and Plant Funds,
Fiscal Years 1988 and 1989 (in \$1,000s)**

	FY 1988	FY 1989
FUNDS PROVIDED		
<i>Federal Appropriations:</i>		
National Zoological Park	\$ 8,150	\$ 5,305
Restoration and Renovation of Buildings	19,254	20,735
Construction Planning and Minor Construction	—	2,770
Tropical Research Institute—Tupper Research Facilities	—	2,700
Astrophysical Observatory—Whipple Base Camp	1,315	3,185
Total Federal Appropriations	<u>28,719</u>	<u>34,695</u>
<i>Nonappropriated Trust Funds:</i>		
Income—Gift and Other		
Environmental Research Center—Land Acquisitions	240	172
Tropical Research Institute—Tupper Research Facilities	763	161
Cooper-Hewitt Museum	286	231
Quadrangle and Related	322	2,719
Visitor Information and Reception Center	692	1,164
Air and Space Museum—Dulles Shelter	69	3
Other	100	396
Total Income	<u>2,472</u>	<u>4,846</u>
<i>Transfers from Other Funds:</i>		
Environmental Research Center—Land Acquisitions	178	—
Total Transfers	<u>178</u>	<u>—</u>
Total Funds Provided	<u>\$31,369</u>	<u>\$39,541</u>

Coopers & Lybrand
Certified Public Accountants

Report of Independent Accountants

To the Board of Regents
Smithsonian Institution

We have audited the accompanying statement of financial condition of the Smithsonian Institution as of September 30, 1989, and the related statement of financial activity for the year then ended. These financial statements are the responsibility of the Institution's management. Our responsibility is to express an opinion on these financial statements based on our audit. We previously audited and reported upon the financial statements of the Smithsonian Institution for the year ended September 30, 1988, totals of which are included in the accompanying financial statements for comparative purposes only.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Smithsonian Institution as of September 30, 1989, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles.

Coopers & Lybrand

Washington, D.C.
December 20, 1989

Smithsonian Institution Statement of Financial Condition, September 30, 1989
(with comparative totals for September 30, 1988) (thousands of dollars)

	Trust funds	Federal funds	Totals, all funds	Totals, 1988
ASSETS:				
Fund balances with U.S. Treasury and cash on hand	\$ 2,120	\$ 98,771	\$100,891	\$ 98,864
Investments (Notes 1 and 3)	303,899	—	303,899	281,921
Receivables (Note 5)	45,629	9,245	54,874	46,685
Advance payments (Note 6)	—	21,743	21,743	21,602
Inventories (Note 1)	15,545	1,492	17,037	13,442
Prepaid, deferred expense and other (Note 1)	16,324	—	16,324	16,105
Property and equipment (Notes 1 and 7)	77,256	246,350	323,606	298,111
Total assets	<u>\$460,773</u>	<u>\$377,601</u>	<u>\$838,374</u>	<u>\$776,730</u>
LIABILITIES:				
Accounts payable:				
Accounts payable and accrued expenses	18,429	19,765	38,194	38,472
Interfund payable	9,764	—	9,764	14,048
Payable for investment securities purchased	10,070	—	10,070	1,436
Deposits held in custody for other organizations (Note 2)	3,148	—	3,148	4,376
Accrued annual leave (Note 1)	2,527	9,004	11,531	10,859
Deferred revenue (Note 1)	37,653	—	37,653	35,713
Long-term debt (Note 9)	11,313	—	11,313	12,062
Total liabilities	<u>92,904</u>	<u>28,769</u>	<u>121,673</u>	<u>116,966</u>
Undelivered orders (Note 1)	—	67,489	67,489	76,198
Commitments and contingencies (Note 8)				
FUND BALANCES (Note 1)				
Trust Current:				
Unrestricted general purpose	13,300	—	13,300	9,036
Special purpose	33,808	—	33,808	34,394
Restricted	20,948	—	20,948	16,576
Trust Endowment and similar funds (Note 4)	237,788	—	237,788	215,090
Trust Plant funds (Note 7)	62,025	—	62,025	59,437
Federal Operating funds	—	1,312	1,312	335
Federal Construction funds	—	32,189	32,189	21,681
Federal Capital funds	—	247,842	247,842	227,017
Total fund balances	<u>367,869</u>	<u>281,343</u>	<u>649,212</u>	<u>583,566</u>
Total liabilities, undelivered orders and fund balances	<u>\$460,773</u>	<u>\$377,601</u>	<u>\$838,374</u>	<u>\$776,730</u>

The accompanying notes are an integral part of these financial statements.

Smithsonian Institution Statement of Financial Activity for the year ended September 30, 1989
(with comparative totals for the year ended September 30, 1988) (thousands of dollars)

	Trust funds				
	Totals, trust funds	Current funds	Endowment and similar funds	Plant funds	Totals, federal funds
REVENUE AND OTHER ADDITIONS:					
Appropriations	\$ —	\$ —	\$ —	\$ —	\$245,935
Government grants and contracts	20,977	20,977	—	—	—
Investment income	17,747	16,947	—	800	—
Net gain (loss) on sale of securities	9,428	—	7,697	1,731	—
Gifts, bequests, and foundation grants	28,353	24,624	2,171	1,558	—
Additions to plant	10,006	—	—	10,006	45,277
Rentals, fees, commissions, and other	8,003	8,003	—	—	2,131
Auxiliary activities	190,395	190,395	—	—	—
Total revenue and other additions	284,909	260,946	9,868	14,095	293,343
EXPENDITURES AND OTHER DEDUCTIONS:					
Research, educational, and collection acquisition (Note 11)	58,246	58,246	—	—	133,410
Administration	18,635	18,635	—	—	17,243
Facilities services	1,822	1,822	—	—	61,652
Acquisition of plant	9,017	—	—	9,017	24,187
Property use and depreciation (Note 7)	2,491	—	—	2,491	24,452
Auxiliary activities	161,363	161,363	—	—	—
Total expenditures and other deductions	251,574	240,066	—	11,508	260,944
Excess of revenue and other additions over expenditures and other deductions	33,335	20,880	9,868	2,587	32,399
TRANSFERS AMONG FUNDS— ADDITIONS (DEDUCTIONS) (Note 12)					
Net increase for the year	33,335	8,050	22,698	2,587	32,399
Returned to U.S. Treasury	—	—	—	—	(89)
Fund balances at beginning of year	334,534	60,006	215,090	59,438	249,033
FUND BALANCES AT END OF YEAR (Note 10)					
	\$367,869	\$ 68,056	\$237,788	\$62,025	\$281,343

The accompanying notes are an integral part of these financial statements.

Federal funds				
Operating funds	Construction funds	Capital funds	Totals, all funds	Totals, 1988
\$211,240	\$34,695	\$ —	\$245,935	\$230,151
—	—	—	20,977	17,438
—	—	—	17,747	15,049
—	—	—	9,428	(2,539)
—	—	—	28,353	23,622
—	—	45,277	55,283	31,347
2,131	—	—	10,134	9,748
—	—	—	190,395	181,171
<u>213,371</u>	<u>34,695</u>	<u>45,277</u>	<u>578,252</u>	<u>505,987</u>
133,410	—	—	191,656	179,038
17,243	—	—	35,878	31,789
61,652	—	—	63,474	60,872
—	24,187	—	33,204	27,770
—	—	24,452	26,943	25,292
—	—	—	161,363	150,226
<u>212,305</u>	<u>24,187</u>	<u>24,452</u>	<u>512,518</u>	<u>474,987</u>
<u>1,066</u>	<u>10,508</u>	<u>20,825</u>	<u>65,734</u>	<u>31,000</u>
—	—	—	—	—
1,066	10,508	20,825	65,734	31,000
(89)	—	—	(89)	(118)
335	21,681	227,017	583,567	552,684
<u>\$ 1,312</u>	<u>\$32,189</u>	<u>\$247,842</u>	<u>\$649,212</u>	<u>\$583,566</u>

Smithsonian Institution Notes to Financial Statements

1. Summary of significant accounting policies

Basis of Presentation

These financial statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, or the Woodrow Wilson International Center for Scholars, which were established by Congress within the Smithsonian Institution (the Institution) but are administered under separate boards of trustees.

The financial statements of the Institution with respect to federal appropriations have been prepared on the obligation basis of accounting, which is in accordance with accounting principles prescribed by the Comptroller General of the United States as set forth in the *Policy and Procedures Manual for Guidance of Federal Agencies*. The obligation basis of accounting differs in some respects from generally accepted accounting principles. Under this method of accounting, approximately \$49,254,000 of commitments of the operating fund, such as purchase orders and contracts, have been recognized as expenditures, and the related obligations have been reported on the Statement of Financial Condition at September 30, 1989, even though the goods and services have not been received. Approximately \$13,561,000 of these commitments are for grants under the foreign currency program. Approximately \$18,007,000 of these commitments are for internal storage facilities and equipment at the Museum Support Center. In addition, construction fund commitments for other projects amounted to approximately \$18,235,000 at September 30, 1989.

The trust funds reflect the receipt and expenditure of funds obtained from private sources, government grants and contracts, investment income, and certain business activities related to the operations of the Institution.

Fund Accounting

To ensure observance of the limitations and restrictions placed on the use of resources available to the Institution, accounts are maintained in accordance with the principles of fund accounting. This procedure classifies resources for control, accounting, and reporting purposes into distinct funds established according to their appropriation, nature, and purposes. Funds that have similar characteristics have been combined into fund groups in the accompanying

financial statements. Accordingly, all financial transactions have been recorded and reported by fund group.

The assets, liabilities, and fund balances of the Institution are self-balancing as follows:

Federal operating funds represent the portion of appropriated funds available for support of Institution operations.

Federal construction funds represent that portion of appropriated funds available for building and facility construction, restoration, renovation, and repair. Separate subfund groups are maintained for each appropriation—Construction and Improvements, National Zoological Park Restoration and Renovation of Buildings, Museum Support Center, and the Center for African, Near Eastern, and Asian Cultures (Quadrangle).

Federal capital funds represent the value of those assets of the Institution acquired with federal funds and nonexpendable property transfers from government agencies.

Trust current funds, which include unrestricted and restricted resources, represent the portion of nonappropriated funds available for support of Institution operations. Amounts restricted by the donor for specific purposes are segregated from other current funds.

Trust endowment and similar funds include funds that are subject to restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be used. Also classified as endowment and similar funds are gifts which allow the expenditure of principal but only under certain specified conditions. Quasi-endowment funds are funds established by the governing board for the same purposes as endowment funds; however, any portion of such funds may be expended with board approval. Restricted quasi-endowment funds represent gifts for restricted purposes where there is no stipulation that the principal be maintained in perpetuity or for a period of time, but the governing board has elected to invest the principal and expend only the income for the purpose stipulated by the donor.

Trust plant funds represent resources restricted for future plant acquisitions and funds expended for plant.

Investments

All investment income, except that of endowment and similar funds, and gains and losses arising from the sale of

investments and property, are accounted for in the fund in which the related assets are recorded. Income of endowment and similar funds is accounted for in the fund to which it is restricted or, if unrestricted, as revenue in unrestricted current funds. Gains and losses on the sale of investments are recognized on the trade date basis using the average cost method.

Inventory

Inventories are carried at the lower of cost or market. Cost is determined using the first-in, first-out (FIFO) method or retail cost method (for those inventories held for resale). Merchandise inventory approximated \$15,545,000 and materials and supplies inventory approximated \$1,492,000 at September 30, 1989.

Deferred Revenue and Expense

Revenue from subscriptions to *Smithsonian* magazine and *Air & Space/Smithsonian* magazine is recorded as income over the period of the related subscription, which is generally one year. Costs related to obtaining subscriptions to *Smithsonian* magazine and *Air & Space/Smithsonian* magazine are charged against income over the period of the subscription.

The Institution recognizes revenue and charges expenses of other auxiliary activities during the period in which the activity is conducted.

Works of Art, Living or other Specimens

The Institution acquires its collections, which include works of art, library books, photographic archives, objects, and specimens, through purchase by federal or private funds or by donation. In accordance with policies generally followed by museums, no value is assigned to the collections on the statement of financial condition. Purchases for the collections are expensed currently.

Property and Equipment—Federal Funds

Property and equipment purchased with federal funds are recorded in the capital funds at cost and depreciated on a straight-line basis over their useful lives as follows:

Buildings	30 years
Major renovations	15 years
Nonexpendable equipment	10 years

Certain lands occupied by the Institution's buildings were

appropriated and reserved by Congress for the Smithsonian and are not reflected in the accompanying financial statements. Property and nonexpendable equipment acquired through transfer from government agencies are capitalized at the transfer price or at estimated amounts, taking into consideration usefulness, condition, and market value.

Property and Equipment—Trust Funds

Property and equipment purchased with trust funds for use by nonincome-producing activities are recorded at cost, or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay and the Carnegie Mansion, which have been recorded at nominal values. Property and equipment are treated as a deduction of the current fund and as a capitalized cost of the plant fund.

Property and equipment for use by nonincome-producing activities is depreciated on the straight-line basis over their useful lives as follows:

Buildings	30 years
Major renovations	15 years
Equipment	10 years

Depreciation is recorded in the plant fund as a deduction to the investment in plant (see Note 7).

Capital improvements and equipment purchased with trust funds and utilized in income-producing activities are capitalized at cost and are depreciated on a straight-line basis over their estimated useful lives of three to ten years.

Government Grants and Contracts

The Institution has a number of grants and contracts with the U.S. Government, which primarily provide for cost reimbursement to the Institution. Grant and contract revenue is recognized within trust funds as expenditures are incurred.

Pledges and Donations

The Institution records significant pledges based upon letters signed by donors. Pledges are recorded at net realizable value as a receivable and as deferred revenue on the statement of financial condition. Revenue from pledges is recognized in the year the pledged funds are collected.

Donations are recognized as revenue in the year the cash is received.

Contributed Services

A substantial number of unpaid volunteers have made significant contributions of their time in the furtherance of the Institution's programs. The value of this contributed time is not reflected in these statements in accordance with generally accepted accounting principles.

Annual Leave

The Institution's civil service employees earn annual leave in accordance with federal law and regulations. However, only the cost of leave taken as salaries is funded and recorded as an expense. The cost of unused annual leave at year-end is reflected in the accompanying financial statements as an asset and an accrued liability in the federal funds.

Annual leave is expensed for trust employees in the trust fund as earned.

Reclassification

Certain items on the 1988 statement of financial condition have been reclassified to conform with 1989 presentation, specifically receivables and payables on the sale and purchase of investments.

2. Related Activities

The Institution provides certain fiscal and administrative services to several separately incorporated organizations in which certain officials of the Institution serve on the governing boards. The amounts paid to the Institution by these organizations for the aforementioned services, together with rent for Institution facilities occupied, totaled \$373,000 (\$298,000 for the trust funds and \$75,000 for the federal funds) for the year ended September 30, 1989. Deposits held in custody for these organizations were \$3,148,000 as of September 30, 1989.

The following summarizes the unaudited expenditures of these organizations for the fiscal year ended September 30, 1989, as reflected in their individual financial statements, which are not included in the accompanying financial statements of the Institution:

Reading Is Fundamental, Inc.	\$8,995,000
Woodrow Wilson International Center for Scholars:	
Trust funds	\$3,505,000
Federal appropriations	\$4,240,000

3. Investments

Investments are recorded at cost on a trade date basis, if purchased, or estimated fair market value at date of acquisition, if acquired by gift. At September 30, 1989, investments were composed of the following:

	Carrying value (\$000s)	Market value (\$000s)
Current funds:		
Short-term investments	\$ 66,337	\$ 66,280
Endowment and similar funds:		
Short-term cash equivalents	32,490	34,800
Deposit with U.S. Treasury	1,123	1,146
U.S. Government and quasi- government obligations	30,089	30,396
Corporate bonds and other obligations	35,297	35,757
Common and preferred stock	137,892	176,668
Charitable trusts	546	581
	<u>237,437</u>	<u>279,348</u>
Plant funds:		
Common stock	125	195
Total investments	<u>\$303,899</u>	<u>\$345,823</u>

Since October 1, 1982, the deposit with the U.S. Treasury has been invested in U.S. Government securities at a variable yield based on market rates.

Substantially all the investments of the endowment and similar funds are pooled on a market value basis (consolidated fund) with each individual fund subscribing to or disposing of units on the basis of the per unit market value at the beginning of the month within which the transaction takes place. As of September 30, 1989, 307,334 units were owned by endowment funds, and 478,459 units were owned by quasi-endowment funds.

The following tabulation summarizes changes in relationships between cost and market values of the pooled investments:

	(\$000s)		
	Market	Cost	Net change
End of year	\$276,613	\$234,799	\$41,814
Beginning of year	\$218,142	\$212,439	5,703
Increase in unrealized net gain for the year			36,110
Realized net gain for the year			7,804
Net change			<u>\$43,914</u>

4. Endowment and Similar Funds

The Institution utilizes the "total return" approach to investment management of endowment funds and quasi-endowment funds. Under this approach, an amount equal to the difference between actual interest and dividends earned during the year and the amount computed under the total return formula is transferred to or from the current funds.

In applying this approach, it is the Institution's policy to provide, as being available for current expenditures, an amount taking into consideration such factors as, but not limited to: (1) 4¹/₂% of the five-year average of the market value of each fund (adjusted for gifts and transfers during this period), (2) current dividend and interest yield, (3) support needs for bureaus and scientists, and (4) inflationary factors as measured by the Consumer Price Index. However, where the market value of the assets of any endowment fund is less than 110% of the historic dollar value (value of gifts at date of donation), the amount provided is limited to only interest and dividends received.

The total return factor for 1989 was 4.1% to all participating funds. Actual dividends and interest earned exceeded the total return for the year, and the amount was transferred from the current funds to the endowment funds (see Note 12).

5. Receivables

Receivables at September 30, 1989, included the following:

	(\$000s)		
	Trust funds	Federal funds	Totals, all funds
Auxiliary activities and other accounts receivable, net of \$6,245,000 allowance for doubtful accounts	\$18,097	\$ —	\$18,097
Receivables for investment securities sold	8,501	—	8,501
Pledges receivable	1,577	—	1,577
Endowment notes receivable	488	—	488
Reimbursements due from grants and contracts	4,168	—	4,168
Interest and dividends receivable	3,034	—	3,034
Interfund receivables	9,764	—	9,764
Value of accrued annual leave	—	9,004	9,004
Other	—	241	241
	<u>\$45,629</u>	<u>\$9,245</u>	<u>\$54,874</u>

6. Advance Payments

Advance payments represent prepayments made to government agencies, educational institutions, firms and individuals for services to be rendered, or property or materials to be furnished.

As of September 30, 1989, the Institution had advances outstanding to the General Services Administration of \$18,199,000, principally for construction services including the Museum Support Center and other projects to be completed in future fiscal years. The Institution at that date also had advances outstanding to educational institutions amounting to approximately \$1,796,000, principally under the Special Foreign Currency Program.

7. Property and Equipment

At September 30, 1989, property and equipment were comprised of the following:

	<u>(\$000s)</u>	<u>(\$000s)</u>
<i>Trust</i>		
<i>Current funds</i>		
Capital improvements	23,001	
Equipment	10,279	
Leasehold improvements	1,609	
Less: accumulated depreciation and amortization	<u>(11,879)</u>	
	23,010	
<i>Endowment and similar funds</i>		
Land	<u>240</u>	
<i>Plant funds</i>		
Land and buildings	60,543	
Equipment	6,514	
Less: accumulated depreciation	<u>(13,051)</u>	
	54,006	
Total, trust funds		<u>\$ 77,256</u>
<i>Federal</i>		
<i>Capital funds</i>		
Property	\$374,659	
Equipment	52,536	
Less: accumulated depreciation	<u>(180,845)</u>	
Total, federal funds		<u>246,350</u>
Total, all funds		<u>\$323,606</u>

Included in the accumulated depreciation of the federal capital funds is \$17,889,000 of depreciation expense for 1989.

Depreciation and amortization expense in the trust funds for fiscal year 1989 for income-producing assets amounted to \$2,714,000 and is included in the current funds. Depreciation of nonincome-producing equipment and buildings for 1989 amounted to \$2,491,000 and is included in the plant fund. The balance of the plant fund at September 30, 1989, included \$8,222,000 of unexpended funds for future plant acquisitions.

8. Commitments and contingencies

The leases for various Smithsonian office and warehouse spaces provide for escalation of rents to coincide with increases in property taxes, operating expenses attributable to the leased property and the Consumer Price Index.

The Institution's operating leases require future minimum lease payments as follows:

<u>Lease payments</u>	<u>(\$000s)</u>
1990	\$ 4,310
1991	4,306
1992	3,956
1993	2,214
1994	2,014
Thereafter	<u>2,156</u>
	<u>\$18,956</u>

Rental expense for office facilities aggregated approximately \$3,365,000 in 1989.

The Institution may incur liability arising out of a suit against the United States by a contractor who was defaulted by the General Services Administration for failure to complete a project for the Museum Support Center in a timely fashion. The suit seeks to reverse the default and alleges, among other things, breach of contract. Management believes that there will be no material adverse effect on the federal funds as any adverse settlement or judgment would be satisfied through future appropriations.

9. Long-Term Debt

Long-term debt as of September 30, 1989, consists of the following:

	(\$000s)
9% note payable to The Riggs National Bank, interest only payable quarterly commencing December 31, 1986; interest and principal payable quarterly commencing September 30, 1991, and ending on June 30, 1998	\$11,000
Noninterest-bearing note payable for purchase of food service equipment, due monthly commencing September 18, 1987, through July 21, 1990	113
9% note payable for purchase of Folkways Records and Service Corporation, due in four annual installments commencing December 31, 1987	200
	<u>\$11,313</u>

The aggregate amount due for all borrowings for the years ending September 30 are as follows: \$212,000 in 1990; \$386,000 in 1991; \$1,211,000 in 1992; \$1,324,000 in 1993; \$1,447,000 in 1994; and \$6,732,000 in years thereafter.

The proceeds of the note with The Riggs National Bank were used to fund construction of a restaurant addition to the National Air and Space Museum. Approximately \$990,000 was recorded as interest expense and was paid by Auxiliary Activities funds for fiscal year 1989.

10. Federal Operating Funds

The federal operating funds include appropriations for salaries and expenses which are expended in the year received. Also included are amounts received with the provision that such amounts can be expended over a period greater than one year.

The federal operating funds for the year ended September 30, 1989, included the following:

	(\$000s)		Fund balance at Sept. 30, 1989
	Additions		
	Appropriations	Other	
Salaries and expenses	\$211,240	\$ —	\$ 370
Special Foreign Currency Program	—	—	72
U.S. India Fund (transfers from Department of State)	—	2,044	842
Smithsonian Tropical Research Institute	—	87	28
	<u>\$211,240</u>	<u>\$2,131</u>	<u>\$1,312</u>

11. Collection Acquisitions

In keeping with generally accepted accounting principles, the Institution records the acquisition of collections as an expense in the year of purchase. For fiscal year 1989, \$3,388,000 was expensed to trust funds and \$1,337,000 to federal funds for the acquisition of collections.

12. Transfers among Funds

The following transfers increased (decreased) respective fund balances for the year ended September 30, 1989:

	(\$000s)		
	Current funds		Endowment and similar funds
	Unrestricted	Restricted	
Total return income reinvested	\$(1,960)	\$(2,634)	\$ 4,594
Income reallocated for special purposes	630	(637)	7
Endowment reallocated to restricted funds	—	584	(584)
Designated as quasi-endowment	<u>(4,229)</u>	<u>(4,584)</u>	<u>8,813</u>
Total transfers among funds	<u>\$(5,559)</u>	<u>\$(7,271)</u>	<u>\$12,830</u>

13. Retirement Plans

The federal employees of the Institution are covered by either the Civil Service Retirement System (CSRS) or the Federal Employee Retirement System (FERS). The features of both of these systems are defined in published government documents. Under both systems, the Institution withholds from the salary of each federal employee the percentage of salary required; the Institution also contributes specified percentages. The cost of the programs for the year ended September 30, 1989, was \$9,474,000.

The Institution has a separate retirement plan for trust employees. Under the plan, both the Institution and the employees contribute stipulated percentages of salary which are used to purchase individual annuities, the rights to which are immediately vested with the employees. The Institution's cost of the plan for the year ended September 30, 1989, was \$4,797,000.

It is the policy of the Institution to fund the accrued costs of all plans currently. There are no unfunded prior service costs under the plans.

14. Income Taxes

The Institution is exempt from income taxation under the provisions of Section 501(c)(3) of the Internal Revenue Code. Organizations described in that section are taxable only on their unrelated business income. No provision for income taxes is required for the year ended September 30, 1989, since the Institution had a net loss from unrelated business activity.

It is the opinion of the Institution that it is also exempt from taxation as an instrumentality of the United States as defined in Section 501(c)(1) of the Code. Organizations described in that section are exempt from all income taxation. The Institution has not as yet formally sought such dual status.

15. Subsequent Event

On November 28, 1989, the President of the United States approved legislation to establish the National Museum of the American Indian (the National Museum) within the Smithsonian Institution. The legislation gave authority to the Board of Regents to enter into an agreement to transfer certain assets, works of art and the endowment of the Museum of the American Indian, located in New York City, to the Institution. The transfer is expected to take place February 4, 1990. The legislation also authorized appropriations of \$10,000,000 to the Institution for construction of the National Museum, for administrative and planning expenses and for care and custody of the collection of the National Museum.

RESEARCH

Robert Hoffmann, Assistant Secretary for Research

International Center

From its inception, the Smithsonian has been an international organization. During the last 143 years, Smithsonian researchers have crisscrossed the globe, searching for unique museum collections and forming a worldwide network of friends and correspondents. In 1983, the increasingly complex global activities of Smithsonian scholars and their collaborators were brought together under the aegis of the International Center.

Today, the International Center consists of five divisions: the Office of International Relations, the International Gallery, the Office of Quincentenary Programs, the Office of Conference Services, and the Smithsonian-UNESCO Man and the Biosphere Biological Diversity Program. The International Center also houses the offices of the Council of American Overseas Research Centers. Each division reports to one of the four assistant secretaries that make up the Smithsonian's International Activities Council, which oversees the center. The five divisions support Smithsonian activities abroad and coordinate the Institution's international interests—particularly those that do not fall within the scope of a single Smithsonian museum or office. The International Center provides a meeting place and an organizational channel to bring together the world's scholars, museum professionals, and decision-makers, as well as the general public. Here, they participate in scholarly conferences, make contacts for future research collaboration, and attend such public programs as forums, lectures, exhibitions, and performances. Through the International Center, the Smithsonian seeks to encourage a broader understanding of the histories, cultures, and natural environments of regions throughout the world.

Office of International Relations

The Office of International Relations (OIR) provides logistical assistance and diplomatic support for the Smithsonian's international research and museum programs. The office is responsible for many of the technical details of international exchanges of museum objects and staff. It serves as the Smithsonian's formal liaison branch with international organizations, government foreign affairs agencies, and institutions or individuals abroad seeking to establish cooperative relationships with the Smithsonian.

Professional services and expert advice in a variety of travel documentation and immigration-related matters are available from the OIR. During 1989, the office provided visa documentation for 105 researchers and museum professionals



"Moco Jumbie" (stilt dancer) Kombo Oloharai entertains visitors on Family Day at the Caribbean Festival Arts exhibition in the Smithsonian's International Center. This four-weekend event was designed especially for families and featured traditional foods, crafts demonstrations, musical performance, and costumes of the Caribbean.

traveling to the Smithsonian or to corresponding U.S. institutions under the sponsorship of the Smithsonian's government-authorized Exchange Visitor Program. Eleven U.S. museums and zoos are now provided with documentation for international exchanges under the umbrella authority of this Smithsonian program. The office also obtained nearly 100 passports and more than 950 foreign visas for foreign travel by Smithsonian staff members and grant recipients.

The Office of International Relations coordinated a number of conferences, official visits, and planning meetings during 1989. The fourteenth biennial gathering of the United States-Japan Binational Commission on Cultural Exchange took place at the Smithsonian under joint sponsorship with the United States Information Agency. In April 1989, a major conference titled "Macroeconomic Policy Impacts on Natural Resource Utilization" was organized jointly by the office and the Agency for International Development. Also in April, the office organized a meeting of scholarly and government organizations to discuss needs for a data center in Madagascar and to coordinate U.S. scholarly contributions to the World Bank's Environmental Action Plan there. Outside Washington, the office organized a seminar on the subject of global biodiversity for the American contribution to the annual ASEAN Science and Technology Week, held this year in Manila. Elsewhere in Asia, the director of the office assumed an active role in the annual meetings of the U.S.-Pakistan Subcommittee on Education and Culture.

During the year, the Office of International Relations also coordinated visits to the Smithsonian by several foreign officials, including Genrikh Popov, head of Fine Arts at the USSR's Ministry of Culture; Jiang Nanfang, Americas Division Chief at the China Association for Science and Technology; and Samson Babi Mululu Kisekka, Prime Minister of Uganda.

As part of the international outreach effort, the office assumed responsibility for the secretariat of the International Cultural Assistance Network (ICAN), an organization composed of local officials from government agencies and private institutions involved in foreign exchanges in the arts and humanities. The International Center hosts meetings of ICAN each month.

The Office of International Relations administers three funding programs designed to encourage international cooperation in scholarly activities. During 1989, the Smithsonian's International Exchange Program supported workshops, training courses, and other short-term activities involving scholars from eighteen countries working with eight Smithsonian

bureaus and offices. Now in its fourth year, the Suzanne Liebers Erickson Memorial Fund facilitated ten exchange visits between Smithsonian staff members and Danish scholars, museum professionals, and students. The Smithsonian Foreign Currency Program (SFCP) has enhanced the quality of American scholarly work abroad since its establishment in 1965, providing in excess of \$70 million in funding for scholars from more than 250 institutions in almost every part of the United States. This program awards grants to support the research of the Smithsonian and other American institutions working in those countries (currently only Burma) where the United States holds blocked currencies derived largely from past sales of surplus agricultural commodities under Public Law 480. In recent years, local currencies have also been made available through the SFCP for work in countries where post-Public Law 480 funds have been established for that purpose, such as the U.S.-India Fund for Educational, Cultural, and Scientific Research and the U.S.-Yugoslav Joint Board for Scientific and Technological Cooperation.

International Gallery

The "Caribbean Festival Arts" exhibition opened in the International Gallery in June 1989 and remained on view through mid-February 1990. Organized by the St. Louis Art Museum, the exhibition displayed costumes and masks from several Caribbean festivals, with emphasis on three major celebrations: the Jamaican street masquerade of Jonkonnu, the pre-Lenten celebration of Carnival in Trinidad, and the Islamic festival of Hosay.

The presentation of the show at the Smithsonian was designed to place these festivals in their broader context, utilizing supplementary displays and programs to explore the diversity and vibrancy of the Caribbean. Architectural facades built for the exhibition transformed the corridors surrounding the gallery into streets like those of the Caribbean. A short videotape served as an introduction to both the exhibition and to the Caribbean. Two ancillary exhibitions examined other dimensions of the Caribbean: A photographic essay on Jamaica by Ray Chen presented the many facets of a single Caribbean island, and "Science as Art: Marine Research in the Caribbean" focused on ongoing research by scientists at the National Museum of Natural History. A broad range of public programs was presented throughout the run of the exhibition. Summer highlights

included an opening night Carnival; performances of the Jamaican play, "Old Story Time," sponsored in collaboration with the Resident Associate Program (RAP); and a series of four Family Days, day-long celebrations featuring Caribbean foods, crafts, music, and dance. Fall programming featured a RAP film series, scholarly symposia sponsored by the Woodrow Wilson Center, and docent-led tours with artistic demonstrations designed for schoolchildren by educators from the National Museum of Natural History.

Office of Quincentenary Programs

The interaction between "old" and "new" world cultures that resulted from Christopher Columbus's first voyage to the Americas created profound changes in the peoples and history of our world. In observance of the 500th anniversary of Columbus's voyage, twenty museums and offices of the Smithsonian are planning special activities, including exhibitions, conferences, publications, recordings, and a television series. All of these events, which are coordinated by the Office of Quincentenary Programs, focus on the consequences of the encounter between the original inhabitants of the Americas with Europeans, Africans, Asians, and other peoples.

A five-part public television series called "The Buried Mirror" is the centerpiece of the Smithsonian's Quincentenary activities. Written and narrated by noted Mexican author Carlos Fuentes and produced by Malone Gill Productions, Ltd., "The Buried Mirror" will examine historical and contemporary relationships between Iberia and America. Additional funding for the television series was provided by the Spanish National Quincentenary Commission and a group of Spanish investors.

In May 1989, the Office of Quincentenary Programs sponsored a conference titled "Violence and Resistance in the Americas: The Legacy of Conquest." This symposium explored the reactions of indigenous peoples to the pressures of European contact and examined the endurance and emergence of Native American cultures. A small, traveling exhibition on the theme of Native American ethnobotany was developed from ideas discussed at the symposium.

Through the time of the 1992 commemoration, the Office of Quincentenary Programs will be providing information about the Smithsonian's Quincentenary commemoration to scholars, community leaders, and the public. To ensure the broadest possible dissemination of information, the office, in

August, began developing a quarterly newsletter, *The New World/El Nuevo Mundo*, which will provide news about the Smithsonian's Quincentenary planning and programs.

Man and the Biosphere Program

The Smithsonian Man and the Biosphere Biological Diversity Program promotes greater international understanding of the cultural and biological diversity of developing countries. The program conducts training, both in the field and in museums, in the areas of conservation biology, natural resource management, the management of species and habitats, and research methodologies. During 1989, a partnership was established between representatives in three Latin American countries—Bolivia, Peru, Ecuador—and Puerto Rico. An effort is under way to expand the program to ten countries by 1996.

One of the strengths of the program is that it helps develop local talent by facilitating the work of Smithsonian researchers with in-country experts. In-country training programs are developed with national and international organizations and experts to ensure that these programs can address each nation's education priorities in conservation. Since 1987, nearly 140 participants from three Latin American countries have been trained in field and museum courses, and an additional 60 are expected to be trained by the end of 1989. Only this type of large-scale training program can provide the local human resources that are needed to develop long-term national conservation strategies.

The program has grown considerably, largely because of the support of international organizations such as the Smithsonian-UNESCO Man and the Biosphere Program, the U.S. Agency for International Development, the World Wildlife Fund, the World Heritage Program, and other organizations that have cosponsored its activities during the last three years. The Smithsonian views the program as a great opportunity to take the lead in an international educational process that will involve a large number of potential collaborators who are—or will be—the decision-makers in their countries.

Office of Conference Services

Based in the International Center, the Office of Conference Services is the Institution's central coordinating office for conferences that are either sponsored by or take place at

the Smithsonian. These conferences fall into three primary categories:

Research conferences are those generated by one or more Smithsonian staff members, usually curators, in order to advance scholarly exchange on a subject integrally linked to the sponsor's ongoing research interests. Several conferences of this type were coordinated and managed by the office in 1989, including "History from Things," a cross-disciplinary conference on material culture sponsored by the National Museum of American History's Division of Engineering and Industry.

International congresses and annual meetings of professional organizations are sponsored at the Smithsonian many times each year by Institution staff members. These meetings often bring together the entire memberships of organizations, making them large and important events. In June, the office worked with the National Museum of Natural History's Department of Anthropology, the National Museum of African Art, and the Arts Council of the African Studies Association to host the Eighth Triennial Symposium on African Art at the Smithsonian.

Collaborative programs are those the Smithsonian works on with outside organizations. With most conferences of this type, which vary considerably in size, the Smithsonian actively participates in shaping the program, though at other times the Institution serves only as host of the meeting. The Office of Conference Services managed one such conference in May, the "Forum on Global Change and Our Common Future." This landmark event was cosponsored by the Smithsonian in cooperation with the National Academy of Sciences, the U.S. Committee for Man and the Biosphere, the American Association for the Advancement of Science, and the scientific research society Sigma Xi. With registration requests far exceeding the capacity of the original conference site, the office negotiated a change of venue to Washington's National Theater and handled all logistical arrangements.

The office has increasingly assumed a clearinghouse role for information on Smithsonian conferences, as well as on conference facilities and suppliers at the Smithsonian, elsewhere in Washington, and around the world. At the beginning of 1989, the office began publishing a quarterly Smithsonian Institution Conference Calendar, listing dates, locations, and registration information for upcoming meetings. The office is also preparing an inventory of Smithsonian conference spaces and will publish a conference facilities guide in 1990.

The staff of the Joseph Henry Papers (JHP) completed the sixth volume of the planned fifteen-volume letterpress edition of the correspondence and private papers of Joseph Henry (1797–1878), a leader of the nineteenth-century American scientific community and the first secretary of the Smithsonian Institution (1846–1878).

Volume six, covering the years 1844–1846, is the last in the series that traces Henry's career as a professor of natural philosophy (physics) at the College of New Jersey (now Princeton University). Research has begun on volume seven, the first volume dealing with Henry's career at the Smithsonian.

JHP staff also worked on research projects focusing on other aspects of the history of American science and technology. John Rumm examined the transformation from scientific management to industrial engineering at the Du Pont Company. He organized a session on the theme of scientific management for the annual meeting of the Society for the History of Technology, at which he presented a paper. Dr. Marc Rothenberg studied the patronage of Harvard College Observatory during the antebellum years.

The staff of JHP also has been involved in joint activities with other Smithsonian organizations. In cooperation with the National Air and Space Museum and the Smithsonian Upper Mobility Program, Beverly Lepley initiated and developed a program preparing Smithsonian staff for entry-level clerical positions. Dr. Rothenberg helped organize the symposium held in honor of the centennial of the Smithsonian Astrophysical Observatory and the sesquicentennial of Harvard College Observatory.

National Zoological Park

The National Zoological Park (NZP) reached an important milestone in 1989: It celebrated its 100th birthday. Festivities began with an old-fashioned birthday party attended by First Lady Barbara Bush, who joined in a parade and cut the cake for District of Columbia and Smithsonian officials, as well as for throngs of excited schoolchildren.

Founded with a vision of conservation that was extraordinary for the nineteenth century, the National Zoo in its centennial year stands as a respected research institution involved in international propagation programs, scholarly research, and innovative education. The Zoo also has made great strides in its long-term goal to convert the Rock Creek Park facility into a biological park that illustrates the ecological and evolutionary relationships between plants and animals.

Centennial Activities

Birthday celebrations reflected the Zoo's commitment to exhibits that demonstrate the ecological holism that is fundamental to modern biology. In May, renowned conservationist Sir Peter Scott and Smithsonian Secretary Emeritus S. Dillon Ripley inaugurated "Wetlands," a complex of lushly planted ponds bridged by a wooden walkway leading into the Bird House. Quickly becoming a favorite of photographers and bird-watchers, "Wetlands" also explores the richness of this heretofore unappreciated environment with many colorful displays, including those illustrating waterfowl migration and courtship. In June, the Zoo opened its "Bat Cave," a closeup look at three species of bats. Interpretive graphics combat widespread misconceptions about bats and aim to foster admiration and empathy for these gentle mammals. The crucial role that bats play in the pollination of tropical plants is also emphasized.

The centennial provided an invaluable opportunity for the Zoo to educate both tourists and local residents about its mission. An open house in June featured behind-the-scene tours of animal keeper areas; demonstrations by veterinarians, researchers, craftspeople, graphic artists, and commissary managers; and ongoing entertainment in a variety of traditions. The public also had a chance to review an exhibit chronicling the Zoo's rich history. This photographic display showed the Zoo's progression from a collection of exotic animals to a research center skilled in applying veterinary science to promote longevity and reproduction to its current role as a conservation and education institution. Selections from the Zoo's photo archives brought people, places, and

ideas alive, inviting comparisons between the past and present, while keeping an eye on the future.

Other New Exhibits

As NZP evolves into a biological park, where the relationship between living organisms and their environment is of paramount importance, new exhibits are being developed to reflect these natural links. One example of this new approach is the exhibit "Aquatic Amazonia," for which work began in 1989. "Aquatic Amazonia" is a massive presentation of life at the edge of the Amazon River, the planet's most endangered freshwater ecosystem. A realistic habitat recreation will evoke the big picture: tall trees, roaring waterfalls, a coiled anaconda, flashing birds, jumping monkeys, and artifacts of Amerindians. Underwater views of the river itself feature caiman, snakebirds, and the glory of the most widespread diversity of fish on the Earth's surface.

The whole exhibit will be enlivened by an exposition of the diverse and crucial contributions of Smithsonian scientists to tropical biology and conservation, with a contemporary ecology hall showing up-to-the-minute global events. "Aquatic Amazonia" and the biological park (referred to as the BioPark) in which it will reside are intended to promote the biological literacy that will be so urgently needed in the twenty-first century.

The Visitor Experience

This year has seen a heightened commitment to making the BioPark's three million annual visitors comfortable during their visit. New steps have been taken to improve the park's ambience, beauty, comfort, and safety. The first phase in this process has been the restoration of Olmsted Walk. Originally the backbone of Frederick Law Olmsted's plan for a naturalistic park, the walk had become in recent years an intrusive and congested road. On the new walk, pedestrians can stroll along a broad promenade from Connecticut Avenue to Rock Creek, enjoying planned views of animals surrounded by plant life from the original palette of the renowned park designer.

The renovated Elephant House also opened this year, with all of the elephants now living together as one herd. The facility is bright, richly planted, and stripped of unsightly

barriers. Interactive stations illustrating the complex and fascinating biology of these giant animals complement the tranquil fish pond and the uncaged family of golden lion tamarins scampering through the greenery.

Similarly, the "Delicate Hoof Building," up to now an unnatural and uninteresting exhibit situated at a critical site near the Connecticut Avenue entrance, is being transformed into a an area showcasing Australian biology. The action and vibrant color of the Great Barrier Reef come alive in Washington in a magnificent 2,500-gallon saltwater tank. Emus and wallabies already occupy spacious yards, and plans for presentations of the unique nature of this continental island, continental drift, and aboriginal culture are under way.

The Women's Committee of the Smithsonian Associates supported two new exhibits in 1989. Beavers, dam builders of the animal kingdom, are largely nocturnal, spending much of the day resting unseen in the lodges they construct. A small television camera now allows visitors to watch the sleeping beavers on a large color monitor. In addition, a new honeybee hive has glass walls revealing the elaborate dances bees use to communicate the nature and location of food sources to their hive mates. Interpretive graphics explain this navigational communication, as well as the co-evolution of bees and flowers. Like bats, bees are essential for pollination of many plants whose flower colors and shapes have evolved to attract them.

Zoo visitors are now brought closer to animals and keepers in several new demonstrations. Grunt, the Vietnamese pot-bellied pig, began to walk the park with his keepers and became an instant favorite. He belongs to a semidomesticated species that lives in and around Asian villages. An imposing red-shouldered hawk, rendered flightless by an injury before coming to the Zoo, is the star of a demonstration highlighting bird biology and conservation.

A new free orientation brochure with accompanying map helps visitors get around on hilly, winding side trails. A new guidebook supplements these aids with thoughtful, biologically authentic information on each exhibit.

Art and technology, so critical to the life history of the human species, is an integral part of the BioPark. For example, the concept of flight is reinforced by the addition of a life-sized model of a prehistoric dragonfly, 28 inches in wingspan, created by the Smithsonian's Office of Exhibits Central in cooperation with Harvard University.

To make it easier for visitors to enjoy all the Zoo's new features, safety and security have been augmented. Remote surveillance cameras have been placed in parking lots, at



Secretary Emeritus S. Dillon Ripley presents the National Zoo's Conservation Medal to Sir Peter Scott for his outstanding efforts on behalf of international conservation during ceremonies marking the opening of the "Wetlands" exhibit on May 3. (Photograph by Jessie Cohen)

entrances, and on pathways. In the last six months, Zoo police officers greeted 3,500 buses, making sure that each group of schoolchildren and tourists arrived safely. Modern bicycle racks were installed for the convenience of the large biking community.

Other improvements were made to guarantee that the Zoo functioned safely. The high-voltage electrical supply system was replaced, ensuring that critical life-support systems can be maintained. Because of its modern high-technology research, special medical procedures, and exhibit fabrication activities, the Zoo is burdened with a variety of hazardous waste products. To address this situation, state-of-the-art storage and disposal programs were implemented.

Education and Outreach Efforts

Exhibit-based public education is the mainstay of efforts to promote biological literacy, but NZP recognizes the need to educate people who may never visit the Zoo. In this spirit, Dr. Christen Wemmer, assistant director for conservation, developed a new training course for zoo managers in developing countries. The two-week course was presented both in

Brazil and Guatemala by a team of North American curators; they reached forty-three participants from eight Latin American countries. Husbandry techniques, genetic and demographic management, and zoo education are featured in the curriculum.

Twenty-one wildlife biologists from seventeen countries participated in the 1989 session of Rasanayagam Rudran's Wildlife Management Training Course. Many of the students were identified by zoo scientists abroad as part of a commitment to include counterpart training as a component of conservation research.

NZP also organized career-oriented symposia for high school and junior-high students, traditionally hard-to-reach audiences; teacher workshops explaining how to use the Zoo to teach biology; classes in conservation and biology for adults; and public lectures on wildlife research. The American Association of Museums awarded its 1989 Museum Educator's Award for Excellence to Judith White, chief of NZP's Office of Education, for developing the first discovery center and family learning laboratories in museums and zoos.

ZooGoer, a monthly magazine published by the Friends of the National Zoo that reaches 26,000 households, schools, and conservation agencies, has been substantially improved. The Smithsonian has also developed a video guidebook that is now on sale, and filming was completed for a one-hour "Smithsonian World" program on the Zoo that will be aired in 1990.

Animal Exhibits

Animal exhibits, the centerpiece of the Zoo, are critical to the Zoo's educational efforts. By observing animals in natural settings, visitors have an opportunity to observe animal behavior and to learn about the relationship between plants and animals.

The popular Invertebrate Exhibit expanded during 1989. Of the 5,000 animals in the collections, 1,500 are invertebrates. Although this represents a sizable proportion of the total Zoo population, it is actually an underrepresentation; at least 95 percent of all animal species are invertebrates.

Throughout the Zoo population, there were more than one thousand births and hatchings in 1989. Perhaps the most significant births were seven black-footed ferrets, a North American species that is extinct in the wild. Its very existence hangs on the slender thread of captive breeding. The Zoo's Conservation and Research Center located at Front Royal, Virginia, was selected as one of two zoos to receive some of

the remaining population of sixty-seven. Looking beyond this breeding success, postdoctoral fellow Brian Miller is using polecats as ferret surrogates to study the development of prey catching and predator recognition. This research will be crucial to the reintroduction of black-footed ferrets to the wild, which is now a real prospect.

Births of golden lion tamarins, Guam rails, Bali mynas, and Arabian oryx will bolster other ongoing reintroduction programs. International species management committees were very excited by the births of golden-headed lion tamarins, African lions, scimitar-horned oryx, clouded leopards, and Cuban crocodiles. In addition, Micronesian kingfishers, amakihi (Hawaiian birds disappearing at an alarming rate), and Sumatran tigers were acquired as seed stock for new breeding programs at the Zoo.

Dr. Mitchell Bush, head of the Department of Animal Health, and Dr. Richard Montali, head of the Department of Animal Pathology, report that many of the medical problems in the collection now involve diseases of senescence: tumors, heart defects, and kidney failure. This means that skilled animal management, good nutrition, and assertive preventive medicine are greatly extending longevity, mirroring the trend of human populations in developed countries.

Research

The Research Building opened after a complete, federally funded renovation that includes new laboratories, environmental- and sound-controlled rooms, animal quarters, computer and darkroom facilities, and a conference room and office suites that are unrivaled by any zoo in the world.

With the new research facility complete, the Zoo added several new researchers to its staff. Dr. Martha Fujita and Dr. John Rappole joined the Department of Conservation, and Dr. Linda Munson joined the Department of Pathology. Dr. Fujita specializes in bat biology and will travel widely in Asia to promote conservation research and training. Dr. Rappole will coordinate research on exotic and native wildlife at the Conservation and Research Center in Front Royal. Dr. Munson is establishing a wild animal tissue-cell culture bank. Dr. Fred Allendorf was selected as the head of the new Molecular Genetics unit; he is internationally known for work on subspeciation and its implications for conservation biology.

Zoo scientists received grants from twenty different organizations in 1989, reflecting the quality and widespread recognition of the research taking place at the National Zoo.

The work of one researcher, Dr. John Seidensticker, had a direct effect on an important exhibit. After studying the critical features of zoo habitats in controlling the behavior and visibility of animals, Dr. Seidensticker recommended that changes be made in the exhibit area of Smokey, the American black bear that the public associates with forest fire prevention. Since the installation of an inexpensive log shelter, Smokey can now be seen 99 percent of the time, compared with 6 percent before the change. More important, this improvement is considered vital to Smokey's health and well-being.

Other Zoo scientists were involved in important research programs this year. Dr. Bush began testing an antibiotic that shows promise of eliminating the carrier state of shigellosis, a bacterial disease that can decimate primate collections. Dr. Bush has also begun studying the high rate of positive reactions to tuberculosis skin tests in elephants in many zoo collections. He gave skin tests to wild African elephants, which apparently had never been exposed to tuberculosis, and found that they, too, showed a high positive reaction rate. He is now looking at blood and tissue samples in an effort to better understand the physiological mechanisms of these apparently false reactions, with the goal of developing a more accurate test.

The reproductive physiology laboratory, headed by Dr. David Wildt, is monitoring hormonal activity in a number of species to document reproductive cycles and to diagnose pregnancy. Because the hormones are recovered noninvasively from urine and feces, the work is especially applicable to difficult-to-handle or free-ranging species, making it possible, for example, to determine if only the behaviorally dominant female in a wild group of dwarf mongooses is having fertile estrous cycles. By uniting the gametes through in vitro fertilization, Dr. Wildt's group is also pioneering the recovery and storage of sperm and eggs from animals that are reproductively incompetent or that die abruptly.

Dr. Montali extended his work on viral hepatitis in marmosets and tamarins. This research is directed at finding a control for a disease that has ravaged many primate collections. He also hosted Dr. Zeng Yuan for a collaborative study of the intestinal tract of giant pandas.

Dr. Eugene Morton and Dr. Russell Greenberg continued their study of migratory birds, which is revealing that the habitat destruction in the tropics caused by human activity and Hurricane Gilbert (1988) are having profound, deleterious effects on the numbers of birds in the Northern Hemisphere.

A focus on marine mammals extends from Dr. Katherine Ralls's work on sex and age differences in geographic movements by California sea otters to the collaborative studies of Dr. Daryl Boness and Dr. Olaf Oftedal on seal milk composition and maternal strategies. Dr. Boness also continued his field studies on the endangered Hawaiian monk seal, and he began observations with Dr. John Francis on the maternal care and mating strategies of the Juan Fernandez fur seal in Chile.

Dr. Oftedal and Dr. Rudran continued their study of the diet of the leaf-eating red howler monkey in Venezuela. Dr. Oftedal also provided nutritional expertise in collaborative studies on green iguanas, red pandas, African lions, toque macques, and bats. Miles Roberts studied the behavioral ecology and reproductive success of chipmunks living on the grounds of the Zoo.

Dr. Devra Kleiman received the Distinguished Achievement Award from the Society of Conservation Biology, in part for leadership in increasing the population of golden lion tamarins to 580 in more than 80 zoos worldwide. Kleiman, NZP colleagues, and Brazilian counterparts have launched studies of the behavioral ecology of wild tamarins (with Dr. James Dietz and Andrew Baker of the University of Maryland), conservation education in Brazil (with Lou Ann Dietz of the World Wildlife Fund), and reintroduction (with Dr. Benjamin Beck, NZP's assistant director for exhibits).

The number of reintroduced tamarins reached sixty-seven in 1989; twenty-nine of those survived. In addition, they had thirteen surviving offspring. The program is widely cited as a model of conservation biology.

Friends of the National Zoo

A nonprofit organization with more than 55,000 members, the Friends of the National Zoo (FONZ) contributed in many ways to NZP's accomplishments in 1989. A record number of 721 FONZ volunteers worked more than fifty-nine thousand hours at the Zoo, providing services worth an estimated \$820,000. These volunteers were critical to the success of many of the Zoo's research, education, and interpretive programs, including the free-ranging golden lion tamarin exhibit and the newly instituted encounters between elephants and visitors. Volunteers also served as guides; collected data for behavioral research on giant pandas, maned wolves, and other species; harvested browse for the

Zoo's primates and elephants; provided clerical support; and assisted animal keepers and gardeners.

FONZ supported the Zoo's education mission with more than sixty classes, workshops, and natural history trips attended by nearly 1,200 adults and children. FONZ produced a new, sixty-page *Guide to the National Zoological Park* and an educational coloring book, as well as its flagship educational magazine, *ZooGoer*. Special issues of *ZooGoer* served as guides to the Zoo's Centennial photographic exhibit and to the new "Bat Cave" exhibit.

FONZ's major fund-raising effort, National ZooFari, was an outstanding success in 1989, collecting \$70,000 for the Theodore H. Reed Animal Acquisition Fund. Monies from this restricted fund were used in 1989 to support construction of the new Great Barrier Reef exhibit and to bring several animals, including a new Sumatran tiger, to the Zoo for conservation breeding programs. Other restricted-fund support included \$25,700 in animal food contributions and \$12,000 to place new benches throughout the Zoo.

FONZ operates, under contract to the Smithsonian, the food, gift, bookstore, and parking concessions at the Zoo. In 1989, profits from these visitor services concessions provided \$550,000 in grants for Zoo research and education programs, \$315,000 for Zoo services, and \$510,000 to the Smithsonian.

Visitor Services continued to upgrade facilities and customer service with new, variable-rate parking fees, expanded and healthier menus in food concessions, and a wider selection of educational merchandise in the gift and bookstore concessions. For the first time, educational information cards were provided with every purchase of a gift with an animal theme from the shops and bookstore. The bookstore also significantly expanded its selection of natural history, biological science, and conservation book titles.

FONZ initiated a wide-ranging environmental conservation program in 1989, including office paper and aluminum can recycling, eliminating styrofoam packaging and reducing plastic packaging in food service, offering paper bags and recycled paper products in Zoo gift shops and the bookstore, and preparing a brochure of conservation tips for distribution to the public.

In 1989, FONZ operated on gross revenues of \$7.6 million, providing close to \$2.7 million in financial resources, volunteer time, and visitor services to the National Zoological Park and the Smithsonian Institution.

Since its founding in 1967, the program in graduate education sponsored by the Office of American Studies has been designed to encourage research in the field of material culture, utilizing the collections and personnel of the Smithsonian Institution's many museums. An additional purpose was to overcome the separation then existing between university and museum scholars. Through formal courses conducted at the Institution, graduate students from cooperating universities are encouraged to take advantage of the opportunities offered by the national museums. Courses have covered art, technology, and social, cultural, and political history. The research interests of participating students have ranged from art to anthropology.

The 1988 fall semester seminar, "Material Aspects of American Civilization," focused on material culture and the political process. The seminar was taught by Dr. Wilcomb E. Washburn, director of the program, and Dr. Bernard Mergen of George Washington University. Ten students participated—seven from George Washington University and three from the University of Maryland.

Other seminars taught during the past year included "The Decorative Arts in America," taught by Barbara G. Carson of George Washington University; "Studies in American Art and History," taught by Rebecca Zurier of George Washington University; and "Technology, Labor and American Society," taught by Gary Kulik of the Smithsonian Institution. Thirty-three students participated in these seminars.

Office of Fellowships and Grants

Smithsonian resources are unparalleled anywhere in the world. Few other institutions offer scholars and students the opportunity to conduct research in subjects ranging from original works of art to historical and anthropological objects, from complex ecosystems on Earth to distant galaxies in the universe. To help researchers take advantage of these vast facilities, the Smithsonian has developed a number of research support programs that encourage scholars to use its museums, libraries, and research facilities in conjunction with staff members. The Office of Fellowships and Grants (OFG) administers these various programs, serving as an institutional link with scholars throughout the world. These academic programs, which include long- and short-term residential appointments, are an important complement to those offered by universities. In 1989, more than 800 undergraduate and graduate students and scholars received awards administered by the OFG.

Programs for Visiting Students and Scholars

The office awarded 87 predoctoral, postdoctoral, and senior postdoctoral Smithsonian Research Fellowships in 1989. Twenty-seven of these awards went to foreign students and scholars from fifteen countries. Participants in this program, which was started in 1965, conduct independent studies under the guidance of staff. Research is carried out in the Institution's bureaus or at field sites, usually over a period of six to twelve months. Research topics covered a wide area of subjects, including protein metabolism in lactating grey and harbor seals, the representation of romantic love in consumer culture from 1900 to 1930, Jamaican Maroon oral traditions, developments in American sculpture from 1969 to 1988, and tectonic studies in the Martian equatorial transition zone.

Awards are also given to students interested in exploring potential dissertation subjects. Twenty-two U.S. and five foreign students in the early stages of their graduate training received these ten-week fellowships in 1989. They studied such topics as the evolution of Duke Ellington's compositional style; molecular evolutionary genetics of sharks; comics and intellectual debates over mass culture; and music, culture, and ideology in the Andean world.

This year, the office developed a new postdoctoral fellowship program in molecular evolution and plant physiology. The program stipulates that research be conducted at two or more of the following bureaus: the National Museum of Natural History, the National Zoological Park, the Smith-

sonian Tropical Research Institute, and the Smithsonian Environmental Research Center. Two awards were offered this year.

The Smithsonian Institution Regents Fellows in residence in 1989 included Roy MacLeod of the University of Sydney, who worked at the National Museum of American History to explore the relations between science, technology, and imperialism, and Peter Goldreich of the California Institute of Technology, who continued his research on planetary dynamics at the Smithsonian Astrophysical Observatory.

The Faculty Fellowship Program encourages minority faculty members to conduct research at the Institution. In 1989, five awards were made for periods of two to four months. Faculty Fellows studied a wide range of subjects, including the systematics, phylogeny, and zoogeography of the cool-adapted mayflies of South Africa; the evolution of images of black and white women in the Hollywood cinema; and measurements and weights in West African cultures.

In addition to the Institution-wide programs funded through the OFG, the office administers fellowships and other awards supported with funds from bureau sources. This year, 164 such fellowships were granted to visitors who come to the Smithsonian for varying lengths of time.

The Smithsonian Astrophysical Observatory offered four postdoctoral and seven predoctoral fellowships. At the National Air and Space Museum, this year's awards included two appointments to the Daniel and Florence Guggenheim Fellowship, one to the A. Verville Fellowship, and two to the International Fellowship Program. The National Museum of American Art, in conjunction with the James Renwick Alliance, offered two senior fellowships under the James Renwick Fellowship Program in American Art.

The Conservation Analytical Laboratory (CAL) awarded three postgraduate internship awards for research and training in subjects ranging from objects conservation to art conservation. Two of these interns conducted their research at the CAL; a third was appointed to the Cooper-Hewitt Museum.

The OFG received an increased number of applications for its popular short-term visitor program. This program helps scholars come to the Institution to conduct research and to collaborate and interact with Smithsonian staff. In 1989, the program provided 131 short-term travel grants, including 70 to international visitors from 32 countries.

Scholars in research, education, and museological fields met to discuss issues of mutual or complementary interest through the OFG's successful workshop program. Nineteen of these workshops were organized by Smithsonian staff

members. Topics studied included "The History of Astronomy at Cambridge, Massachusetts," "History from Things," "Comparative Evolutionary Biology," and "Science and the Federal Patron since 1945," which was a joint venture between the National Museum of American History and the Naval Research Laboratory.

Internships and Other Programs

Because internships offer such a valuable experience for students, they are becoming an integral part of many undergraduate and graduate school programs. The OFG administers all internship appointments supported with stipends. In 1988, a total of 131 appointments were made, a substantial increase over previous years. Students studied in a great many Smithsonian bureaus, including twenty-four at the National Air and Space Museum, four at the Hirshhorn Museum and Sculpture Garden, eleven at the National Museum of American Art, and twenty-one in the Botany and Vertebrate Zoology Departments of the National Museum of Natural History. Eleven students came to the Smithsonian Environmental Research Center to participate in their work-and-learn program in environmental studies. Stipends were awarded to an additional sixty-four interns placed in other bureaus.

Nine students participated in the Smith College-Smithsonian Program in American Studies. The program features a seminar course and research projects conducted under the supervision of staff members.

The Office of Elementary and Secondary Education (OESE) continued its high school internship program in 1989. Forty-one students participated in a five-week session designed to broaden an existing academic interest or vocational skill.

The OFG offered a number of intern appointments aimed at increasing the participation of minorities in Smithsonian research activities and fields of interest. Thirty-three minority undergraduate and graduate students from across the country were awarded internships to work at a variety of bureaus and offices throughout the Smithsonian.

In collaboration with the bureaus, the OFG continued a program for Native American students and community scholars, making twenty-two short-term awards in 1989. Scholarly efforts included the study of the 3,600 photographs of the National Anthropological Archives Zuni Collection and historical research on the Red Rock Community Shiprock Agency, Navajo Nation.

The Cooperative Education Program, aimed at minority graduate students whose research interests coincide with those of the Institution, continued this year. One graduate student received an appointment. All students in this program work in professional research-related jobs at the Smithsonian while continuing their university education. The appointments hold the potential for permanent employment at the Smithsonian.

The Education Fellowship Program also is designed to involve minority students in the Institution's diverse fields of interest by offering support for graduate study and research training. One fellow, a graduate student in anthropology, has completed his master's degree at the University of Massachusetts and is continuing his fellowship by working on his doctoral degree.

To honor Regent Emeritus James E. Webb, the Institution established a fellowship in his name designed to promote excellence in the management of cultural and scientific nonprofit organizations. This year, three professional staff members from the Smithsonian were awarded fellowships to enhance their administrative skills. The recipients came from the staffs of the Management Analysis Office, the National Air and Space Museum, and the Office of Planning and Budget.

The Scholarly Studies Program is a competitive grant program that funds research by Smithsonian staff. As a result of two meetings of a review committee composed of scholars from outside the Institution, 31 one- and two-year grants were awarded in 1989.

The Research Resources Program supports archival projects that arrange, describe, preserve, and make more widely available to the public selected archival materials and document collections of major importance to research. In 1989, the second year of the program, a review committee of archivists from outside the Institution recommended that ten grants be awarded.

Smithsonian Astrophysical Observatory

Like archaeologists who explore Earth's past through the relics of ancient civilizations, astronomers decipher our cosmic history through the remnants of ancient light. By collecting and analyzing radiation that left stars billions of years ago, astronomers probe the secrets of celestial worlds that may have disappeared long before Earth was even born. And by gazing ever deeper into space, they also travel back into time to record primordial events that may hold the clues to our cosmic origins.

This year, several astronomers at the Smithsonian Astrophysical Observatory (SAO) turned their archaeological skills to some unusual ends—digging into fields of data long forgotten or ignored, and thereby advancing our knowledge of the Moon, the Solar System, and the distant Universe.

Nearly two decades after the Apollo astronauts returned to this planet with samples of lunar soil, a completely new rock type was identified on the moon by an SAO scientist sifting through the old material. Tiny grains of a magnesium-rich mineral called cordierite, usually present only in very deep geological deposits, were found in a collection made by the Apollo 15 mission. The appearance of the rare mineral on the lunar surface suggests that it was “excavated” by a massive meteorite impact, perhaps the same one that created the Moon's huge Imbrium Basin near the site where the sample was collected.

Painstaking orbital calculations by another SAO astronomer revealed that a “new” asteroid observed in November 1988 by two amateur astronomers was actually one discovered seventy-seven years ago. The tiny minor planet, officially known as Hapag, was first found in 1911; but because it had not been seen since, it was considered lost. However, additional checking by the SAO researcher showed tracks of the “lost asteroid” on photographic plates taken in the 1950s and again in 1980. Both times, it had gone unrecognized.

Through a combination of intuition, imagination, and technical innovation, a team of SAO astronomers is creating a new X-ray map of the sky using data once consigned to the scientific scrap heap. A decade ago, the Einstein (HEAO-2) Observatory produced the first focused images of cosmic X-ray sources, including some of the most energetic—and exotic—phenomena in the universe: supernova remnants, quasars, pulsars, and suspected black holes. Unfortunately, when the spacecraft reentered the atmosphere eighteen months after launch, this unique window on the universe was closed, and the five thousand images that had already been produced were considered the final record. However, one SAO researcher felt that some valuable Einstein data had

been overlooked. He reasoned that when the Einstein telescope was swung from one “pointed” observation to another in a different part of the sky, its still-activated detectors might have made an unintentional record of the strip of sky along the way. A computer program was devised to reconstruct these thin strips into a full-blown sky survey. The result is a soon-to-be published catalogue that includes some one thousand bright X-ray objects, half of which have not been seen before.

This respect for the value of past research—and its application to new initiatives in the present—is most appropriate in an organization about to celebrate its 100th anniversary. Founded by Samuel Pierpont Langley, the third secretary of the Smithsonian, SAO has for a century pioneered the study of those physical processes determining the nature of our universe. Today, its varied scientific programs are coordinated with the Harvard College Observatory and, together, the two observatories form the Center for Astrophysics (CfA) in Cambridge, Massachusetts. In addition, SAO operates the Oak Ridge Observatory in Massachusetts and the Fred Lawrence Whipple Observatory in Arizona. The Whipple Observatory is the site of the Multiple Mirror Telescope, which SAO manages jointly with the University of Arizona.

Research at the center is organized in seven divisions, whose efforts complement each other. Scientific data are obtained from ground-based telescopes; instruments aboard balloons, rockets, and space satellites; and laboratory experiments. The analysis of these data is performed mainly with the observatory's computers, and the results and interpretations are published in scientific journals and reports. This information is disseminated widely to various audiences through lectures, books, and popular media. In cooperation with Harvard, SAO also conducts an innovative program to develop secondary-school curriculum materials that use examples from astronomy to teach the basic principles of physics and mathematics.

On behalf of the International Astronomical Union, SAO operates two global science information services. The Central Bureau for Astronomical Telegrams disseminates information about transient astronomical phenomena such as comets and supernovas. The Minor Planet Center computes orbits and provides observational information on asteroids and serves as the official arbiter of minor planet nomenclature. And, with support from the National Aeronautics and Space Administration and the National Science Foundation, SAO this year became the U.S. gateway for SIMBAD, an international astronomical computer data base maintained at

Strasbourg, France.

A description of the work conducted at each of the seven divisions in the past year, with research highlights, follows.

Atomic and Molecular Physics

Through a combination of theoretical studies and laboratory experiments, SAO scientists explore the fundamental atomic and molecular processes occurring in a wide variety of astrophysical environments—from the interiors of stars to the dusty cores of interstellar clouds to the upper reaches of the Earth's atmosphere.

One of the most remarkable discoveries associated with Supernova 1987A was the detection of emission from a carbon monoxide molecule that formed during the stellar explosion. How this molecule could have formed—or survived—in this hostile environment of intense radiation and extreme heat poses some significant challenges to current theory. Division scientists have developed new models that describe conditions in the supernova's expanding shell of gas and dust that suggest some specific mechanisms for molecule formation.

Growing concern over depletion of the Earth's ozone layer and the prospect of global warming have turned a long-standing divisional interest in atomic and molecular processes of the atmosphere into a subject of some urgency. In collaboration with other SAO colleagues, the spectra of several stratospheric molecules were obtained by a balloon-borne infrared spectrometer flown in May 1989. How the abundances of molecules such as ozone, carbon dioxide, hydrogen peroxide, and hydroxyl vary with both time and altitude is now being analyzed as part of the effort to determine what processes may preserve or destroy Earth's protective shield of atmosphere.

Since November 1988, SAO and Harvard University have operated the Institute for Theoretical Atomic and Molecular Physics with funding from the National Science Foundation. By attracting and training graduate students of the highest quality, the institute hopes to increase the number of theorists in this field, correcting a critical national shortage. The institute also brings senior researchers to SAO for discussions and collaborations with students and other staff members. In its first year, the institute hosted some thirty visiting scientists for stays varying from several days to several months.

High-Energy Astrophysics

Research in this division is directed toward understanding the mechanisms that generate X-ray radiation from objects such as neutron stars, quasars, and pulsars; studying the formation, evolution, and ultimate fate of stars and galaxies; and measuring the overall distribution of matter in the universe. Because X-rays are absorbed by the Earth's atmosphere, all observations must be made from balloons, rockets, or space platforms. SAO scientists are currently analyzing X-ray data from several past missions and preparing instrumentation for future flights.

An SAO scientist and a colleague at Bell Laboratories are working to resolve a long-standing cosmic mystery: the source of positrons—seen as high-energy gamma-ray radiation—in the center of the Milky Way galaxy that disappeared suddenly early in this decade. These scientists are investigating the possible linkage of this source with an unusual X-ray source known as GX1+4 found in the same region of the sky. They have observed changes in the intensity of GX1+4 that seem to mimic the behavior of the positron source. There is a growing body of evidence that these two sources may be one and the same.

In March, a massive flare on the surface of the sun, the third largest on record, created a geomagnetic storm on Earth that disrupted radio communications, caused power failures in Canada, and produced auroral displays seen as far south as the Gulf of Mexico. By lucky chance, a rocket-borne X-ray telescope using a new multilayer mirror was launched from New Mexico in time to observe this gigantic solar eruption. This SAO-built instrument obtained high-resolution X-ray images of the flare's onset phase. This information, combined with simultaneous observations in other wavelengths, has provided new insights into the physical processes powering such events.

Optical and Infrared Astronomy

Optical and infrared research at the SAO ranges from studies of the large-scale structure of the universe to the formation and evolution of stars. This division's many areas of interest include the kinematics of the halo of our galaxy, active galactic nuclei, gravitational lenses, supernovae, the chemistry of the Earth's atmosphere, and the dynamics of globular clusters and galaxies.

The Center for Astrophysics Redshift Survey, an ambitious project designed to map the three-dimensional distribution of some fifteen thousand galaxies in the northern sky, is now approximately two-thirds complete and has revealed the galaxies to be spread across giant “sheets” surrounding vast voids. Indeed, during the mapping this year, evidence was found for what may be the largest, single coherent structure so far seen in nature—a 2-inch wall of galaxies more than 400 million light-years long. The existence of such an extraordinarily large structure poses serious problems for all current theories concerning the origin and evolution of the universe.

While making extremely accurate measurements of the radial velocities of bright stars to detect periodic motion, SAO scientists discovered several low-mass companion objects. These otherwise invisible objects could be the elusive “brown dwarf stars” thought by some theorists to make up much of the mass of our galaxy.

SAO scientists have a reputation for creating innovative instrumentation for both ground-based and space astronomy. Recognizing this leadership, the National Aeronautics and Space Administration (NASA) this year selected SAO to build and operate the Submillimeter Wave Astronomy Satellite (SWAS) to study how molecular clouds in the Milky Way collapse to form stars and planets. Scheduled for launch in 1993, SWAS is part of NASA’s recently revitalized Small Explorer Program, a series of small, relatively inexpensive scientific spacecraft that can be developed quickly and deployed by expendable rockets. Other SAO instruments under development include two-dimensional-array electronic detectors, optical-fiber-fed spectrographs, and a prototype two-element optical and infrared interferometer with a baseline approximately 50 meters long to be installed at the Whipple Observatory.

Planetary Sciences

Research in this division strives to understand the planets, satellites, and other small bodies of the Solar System, as well as the processes that created them out of a great, whirling, nebulous cloud of gas and dust billions of years ago. For example, new insight into the dynamics of the early Solar System was provided by a study of the stability of asteroids orbiting between Jupiter and Saturn. According to this analysis, none could persist there for longer than twenty or thirty million years.



The Smithsonian Astrophysical Observatory hopes to establish a worldwide network of small, relatively inexpensive, and remotely operated automatic photoelectric telescopes similar to this 0.75-meter-diameter instrument installed at the Whipple Observatory. (Whipple Observatory photograph)

A study of the two dozen or so known “Sun-grazing” comets, those whose orbits come extremely close to the Sun, including some thought to have actually crashed into the solar surface, has shown that all these comets could have originated from the breakup of a single, large, progenitor comet in the fourth century B.C.

Activity in the Central Bureau for Astronomical Telegrams and the Minor Planet Center continued at very high levels this year. Among the more interesting events reported were the discoveries of six comets in the vicinity of the sun made by a space-borne coronagraph.

Radio and Geoastronomy

Research in radio astronomy attempts to understand the structure, evolution, energy sources, and ultimate fate of those astronomical objects that emit radio waves. As pioneers in very long baseline interferometry (VLBI), SAO scientists use this radio-observing technique to measure directly drifts among the continents, to probe the interior of the Earth, and to determine the distances to cosmic sources and study their structures.

Various VLBI arrays were used to measure the properties of relativistic jets emanating from quasars and active galaxies. The goal is to understand how particles are accelerated to velocities near the speed of light and why they seem confined in well-collimated streams. For example, one experiment using eighteen antennas imaged the structure of the jet in the galaxy M87 with unprecedented clarity.

In its first full year of observations, a 1.2-meter-diameter radio telescope installed at Cambridge made a sensitive survey of carbon monoxide distribution in the little-studied outer parts of the Milky Way, with the resultant identification of two giant, star-forming regions. Other observations of carbon monoxide in the nearer Perseus spiral arm of our galaxy provided new details on the size and mass distribution of molecular clouds in the vicinity of stellar associations and supernova remnants. This study represents a vital step toward understanding the process of star birth in such clouds.

The close collaboration between radio astronomers and laboratory spectroscopists at SAO resulted in the discovery of a new molecule, silicon carbide (SiC), in the gaseous envelope around an evolved star. This free radical—a diatomic metal carbide—had long defied detection both on Earth and in space. However, the tantalizing suggestion of the molecule's distinctive lines seen in the spectra of a star by European astronomers led to its confirmation in SAO's laboratory.

SAO continued its development of innovative instruments for astronomical research, including highly stable atomic clocks built to support programs of VLBI, deep-space tracking efforts, and national time-keeping programs. These

SAO-built clocks played a vital role at those NASA stations around the world monitoring the *Voyager* spacecraft's final planetary encounter with Neptune in August.

Solar and Stellar Physics

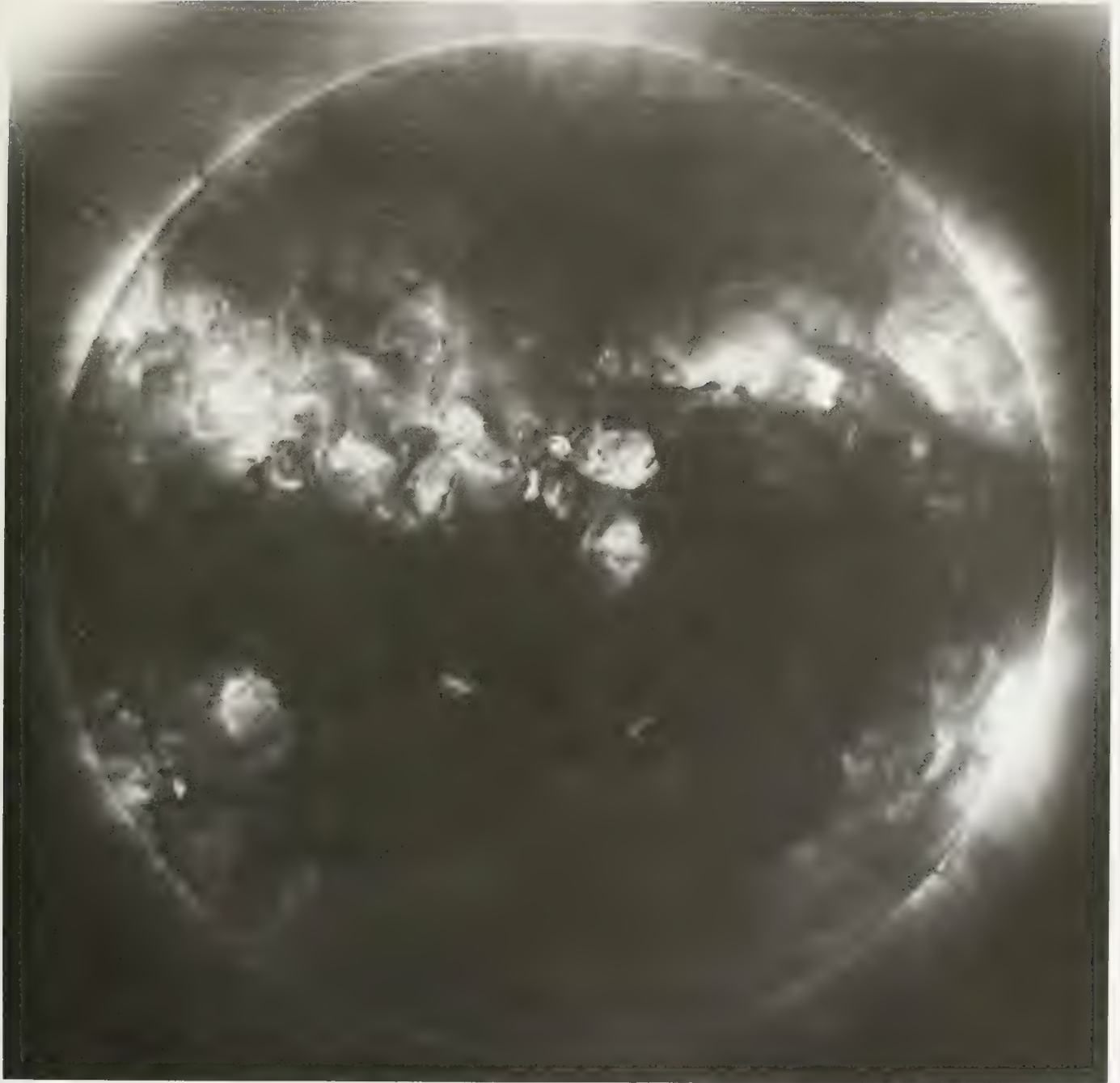
Investigations in solar and stellar physics are concerned with the physical processes underlying the behavior of the Sun and stars. This information is crucial to our understanding of the dependence of observed properties on factors such as age, composition, and physical association with other stars in pairs and groups. Of particular interest is the behavior of hot gas under varied conditions—in the Sun's interior, in the outer atmospheres of stars, in the space between the stars, and in the material ejected by young stars and supernovae.

Although the supernova in the Large Magellanic Cloud (SN1987A) has faded considerably since its discovery in February 1987, it continues to be an object of great interest. Using optical speckle interferometry to obtain high-resolution images of SN1987A, an SAO team detected a slight displacement in the supernova's center of brightness with respect to the pre-explosion position of its suspected progenitor star, Sanduleak -69 202. The finding suggests that this star may have been part of a binary system and that only one component survived the explosion. The presence of a second, relatively bright star nearby could account for the "flattening" of the supernova's light curve, instead of the expected steady, continuing decline in luminosity.

SAO scientists also are studying magnetic activity cycles in other stars for clues to understanding how similar cycles in the Sun produce diverse geomagnetic phenomena that may be linked to terrestrial climate change. A new research tool being used to obtain these observations is the Automatic Photoelectric Telescope (APT), a fully robotic instrument ideal for long-term monitoring of cyclic behavior. As a leader in the implementation of APTs, SAO has begun efforts to organize and establish a global network of such instruments.

Theoretical Astrophysics

Theorists study the objects and systems of the universe by means of mathematical analysis and computer simulation. Although usually intended to provide interpretations of observed phenomena, this research often results in the prediction of new phenomena not yet seen. Most investigations involve independent work, but collaborations among individuals and other groups at SAO are common.



The highest resolution X-ray image ever obtained of a solar flare and the Sun's hot outer atmosphere, or corona, was taken by a Smithsonian Astrophysical Observatory/IBM telescope aboard a NASA sounding rocket launched from White Sands Missile Range, New Mexico, on September 11. (Photograph courtesy SAO and IBM Research)

Smithsonian Environmental Research Center

One of the most exciting theories of cosmology is the concept of an “inflationary universe,” in which the infant cosmos suddenly and dramatically expands to a significant percentage of its current size within a fraction of a second of its creation. Although this theory solves many cosmological problems posed by the observed distribution of matter in the present universe, it is not without its own difficulties. Several investigations this year concentrated on how the geometry of large-scale structure in the universe might be made consistent with inflation models.

Supernova 1987A was not only a bonanza for observational research but also stimulated much theoretical work on supernova hydrodynamics and related nucleosynthesis. A major surprise was the early detection of nuclear gamma rays from the supernova, thus implying that materials synthesized at great depths had been mixed toward the surface faster than expected. SAO investigations of this problem found that an overlooked process—convection in the supernova’s expanding layers—could produce the required mixing.

Even two decades after Apollo, the origin of the moon remains a mystery. Using the computer, SAO scientists have produced one possible scenario for the birth of the moon out of a massive collision between the early Earth and another planet. This simulated cataclysm creates a large secondary body with a mass and other physical characteristics similar to our moon.

Scientists at the Smithsonian Environmental Research Center (SERC) are on the cutting edge of studies contributing to a better understanding of complex environmental phenomena and problems. In Edgewater, Maryland, on 2,600 acres bordering the Rhode River, a tributary of the Chesapeake Bay, SERC researchers are conducting long-term interdisciplinary studies in the field and in the laboratory.

The center complements its research activities with educational programs for students—from undergraduates to post-doctoral fellows—and for the public. Teacher- and docent-led tours acquaint the public with the center’s mission and facilities. Hikes along the two-mile Discovery Trail and center-organized canoe outings on the tidal river introduce visitors to the wonders and fragility of the coastal environment.

Through regular seminars, center researchers and their counterparts from universities and governmental laboratories keep each other abreast of work and issues in areas of mutual interest. In addition, the center organizes and hosts scientific workshops on a variety of topics.

During 1989, the center’s facilities were expanded to meet growing research needs. A 7,400-square-foot laboratory wing, an addition to the main office and laboratory building, was completed, and the building was named in honor of former U.S. Senator Charles McC. Mathias, Jr., of Maryland, an untiring champion of the Chesapeake Bay. The building was formally dedicated on June 1, 1989. An instrument shop addition to the main shop building was also completed.

The following examples of 1989 research activities show how SERC studies help to unravel the complex web of factors that influence the environment’s well-being. Research is conducted by staff scientists, who represent a diverse array of disciplines, and by visiting scientists and students.

Ultraviolet Radiation Studies

The Smithsonian pioneered studies in the collection of data on the intensity and spectral distribution of solar radiation on the Earth’s surface. For the past several years, these efforts have been enhanced by a cooperative arrangement with the National Oceanic and Atmospheric Administration (NOAA). NOAA has provided office and laboratory space and utilities and has helped operate Smithsonian ultraviolet spectral radiometers at NOAA stations as part of a project called Global Monitoring of Climatic Change.

These measurements make it possible to calculate the concentration of ozone in the atmosphere and the amount of harmful ultraviolet (UV) radiation on the Earth’s surface.

When ozone concentrations decline, UV doses on Earth increase, with potentially serious consequences. The Smithsonian UV measurements span a complete sunspot cycle, which averages eleven years, and have been made at a number of latitudes, from 90° S to 71° N. These data are unique and demonstrate the strong interaction of the solar sunspot cycle with the dynamics of ozone concentration changes in the stratosphere. Radiation data gathered between 1976 and 1988 reveal unpredicted oscillations in ultraviolet radiation, which are of great concern because they indicate that radiation levels high enough to cause skin cancer are penetrating the Earth's surface.

A new generation of spectral radiometer now under development at the Smithsonian is expected to be completed soon and placed into operation in a network of sites. It will allow more refined analyses of the atmospheric dynamics of ozone and will be applied to research in other regions of the solar spectrum as well.

Greenhouse Effect on Tidal Marshes

Rising levels of atmospheric carbon dioxide globally—which cause the “greenhouse effect”—are expected to have a major impact on both climate and vegetation. During 1989, SERC summarized results of three years of field research on the effects of elevated carbon dioxide concentrations on Chesapeake Bay tidal marshes. The experiments have been conducted in open-top chambers over sections of perennial plant communities. The chambers were built, tested, and calibrated for continuous carbon dioxide enrichment of the air. The chambers allow the continuous measurement of plant photosynthesis, respiration, and water-use efficiency. Plants in the chamber were used to compare plants under ambient and elevated (ambient plus 340 parts per million) carbon dioxide amounts during the entire 1987 and 1988 growing seasons. Comparisons were made between sedge and salt meadow grass communities.

These species have different photosynthetic mechanisms for carbon reduction, and laboratory studies have found significant differences in their responses to elevated carbon dioxide. For sedge, elevated carbon dioxide resulted in more shoots per surface area (30 percent), increased water-use efficiency (133 percent), and delayed onset of fall dormancy. For salt meadow grass, elevated carbon dioxide had relatively little effect on growth but did spur increased water-use efficiency. The overall net community storage of carbon dioxide doubled in sedge and increased 25 percent in the salt



Secretary Adams and Senator Charles McC. Mathias, Jr., unveil the dedication plaque for the new laboratory named in honor of the senator at the Smithsonian Environmental Research Center in Edgewater, Maryland. (Photograph by Richard Strauss)

meadow grass. No physiological acclimation to elevated carbon dioxide was observed over the two-year period.

Impact of Hurricane Gilbert on Tropical Forests

SERC scientists have been conducting long-term ecological studies of a dry tropical forest in the state of Quintana Roo, on Mexico's Yucatan peninsula. Over a four-year period, there were significant annual differences in tree growth and litter production in response to variation in rainfall. However, the production of blossoms and fruits was relatively constant between years.

In September 1988, Hurricane Gilbert, the most intense tropical depression ever measured in the Caribbean, hit the forest and affected natural growth processes. Most trees were left standing, but they were defoliated. In addition, most branches were broken. Sprouting of new growth began within three weeks. Vines sprouted profusely in the understory. Leaf litter production was about double the average measured for the preceding four years. The recovery of this forest from the hurricane will be followed in order to better understand the dynamics of these widespread but little-studied dry tropical forest ecosystems.

Forests and Water Protection

Studies focusing on headwater streamside, or riparian, forests in the Chesapeake region have quantitatively documented how these forests act as natural buffers, filtering out pollutants in runoff from agricultural uplands.

Over a three-year period, mixed hardwood forest strips 50 to 100 feet wide were studied to determine how effective

they are in protecting watershed streams from agricultural runoff. Researchers discovered that the forest vegetation trees transpired an average of 67 percent of the sum of precipitation and groundwater inputs, and took up an average of 86 percent of the nitrate and 25 percent of the sulfate that entered the forest as rainwater or groundwater. Only 25 percent of the nitrate was stored in the trees. Nitrate uptake was relatively constant from year to year but was highest (97 percent) in autumn and lowest in winter (81 percent).

Studies of the relationships between floodplain forests and larger streams concluded that there are qualitatively different functional roles. Headwater streamside forests trap primarily the coarse particulates resulting from soil erosion, while floodplain forests trap finer particulates rich in phosphorus. Also, though headwater forests are more effective at processing shallow groundwater, floodplain forests are most effective at processing surface water. Thus, the combined effects of forested streamsides on small feeder streams and forested floodplains on larger streams are necessary to protect overall water quality under the complete range of normal conditions.

Ecology of the Rhode River Estuary

Past SERC research has shown that most of the primary production in the Rhode River estuary, an extremely productive ecosystem, comes from phytoplankton. New studies have focused on the role of grazing planktonic microzooplankton in regulating these phytoplankton populations. Dilution- and fluorescent dye-labeling techniques were used to measure grazing rates of specific zooplankton and the overall impact of zooplankton community grazing. Thus, for example, at concentrations of 50,000 cells per milliliter of *Nannochloris*, a concentration of a single-celled green phytoplankton typical in the Rhode River, the zooplankton *Brachionus* grazed 300 cells per hour per organism.

Another type of zooplankton, a tintinnid, grazed 15 to 20 cells per hour, and *Euplotes*, a small ciliate protozoan, grazed only 5 cells per hour. Although phytoplankton density and species composition, as well as zooplankton species composition, affect grazing rates, various field experiments have indicated that overall grazing by zooplankton reduced phytoplankton potential growth by 45 to 100 percent. To better understand phytoplankton populations in estuaries, researchers need to study grazing dynamics in conjunction with the level of available nutrients, suspended sediments, light intensity, and dilution rates.

The Smithsonian Institution Archives (SIA) keeps records highlighting the rich past of the Institution. As the Institution grows and diversifies each year, so must its archives, whose mission is to accommodate its records, to preserve them, and to help people find in the records the evidence they need to understand the past. This year, the Archives made great strides in meeting these goals: Staff moved 5,300 cubic feet of records from temporary storage on the balconies of the Arts and Industries Building to leased space at Fullerton Industrial Park near Springfield, Virginia. In addition, the Archives completed the first year of a multiphase project to conserve, describe, and photograph more than 1,500 architectural drawings of Smithsonian buildings.

As in past years, the Archives received many records and other documentary material pertinent to the history of the Smithsonian Institution, including the papers of Frank C. Whitmore, Jr., vertebrate paleontologist, U.S. Geological Survey; ichthyologist Robert H. Gibbs, Jr.; designer Crimilda Pontes; and ornithologists Storrs L. Olson, John W. Aldrich, and Richard C. Banks. Professional societies—the American Ornithologists' Union, the American Arachnological Society, and the Society of Vertebrate Paleontology—continued to add material to their archives housed at SIA.

The Archives also joined in the celebration of the centennial of the National Zoo with the revision and publication of number ten in the *Guides to Collections* series. The latest edition is called *Guide to the Records of the National Zoological Park, 1887–1965*, by Alan L. Bain. An exhibition titled “The National Zoological Park, 1889–1989” was mounted in the Archives.

General Archival Program

The work of surveying, scheduling, and transferring the Institution's records continued throughout the year. A records survey was begun at the National Air and Space Museum, and work continued on records disposition schedules for the Archives of American Art. By moving records to the storage area at Fullerton, SIA was able to reopen its records center at North Capitol Street. As a result, several offices began transferring records to the center, where they will be discarded when their legal retention age is reached. With the help of SIA, registrars from the National Museum of Natural History and the National Museum of American History began the work of reviewing and separating accession records that have long been housed in the Archives in one record unit.

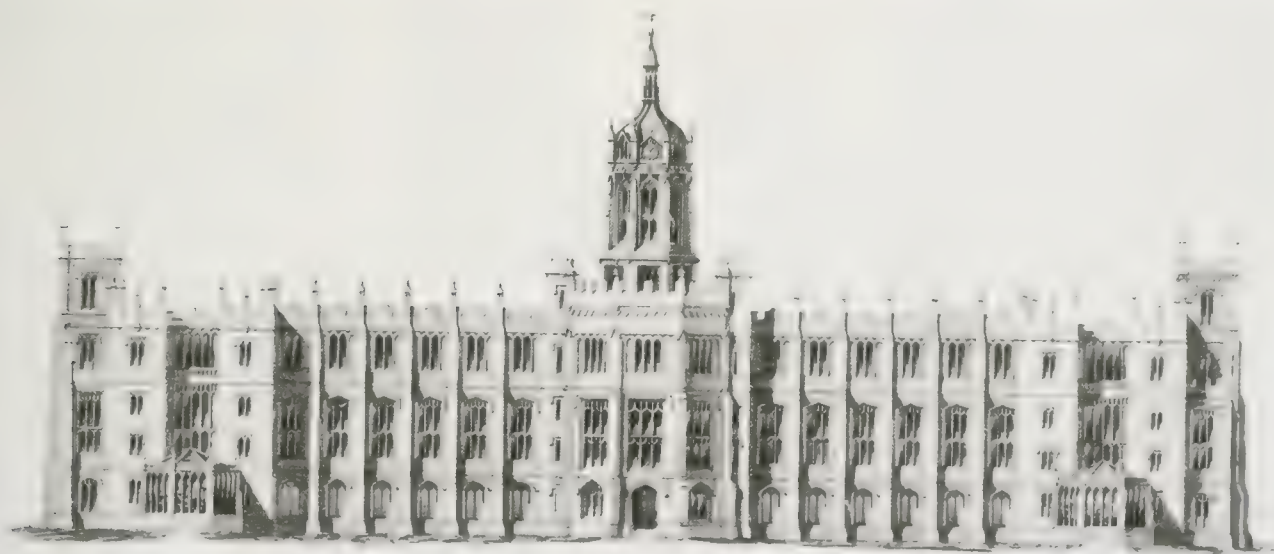
Reference Service

The staff answered more than 1,200 requests and provided nearly 6,000 items and 15,000 copies to researchers. David DeVorkin of the National Air and Space Museum began work on a biography of the fifth secretary of the Smithsonian, Charles Greeley Abbot; and Desmond Collins of the Royal Ontario Museum continued his study of the Smithsonian's fourth secretary, Charles Doolittle Walcott. Professor John W. Larner of Pennsylvania State University began a project to publish the papers of botanist Joseph Trimble Rothrock.

The Office of Architectural History and Historic Preservation continued to make heavy use of the Archives, as did interns and volunteers working with the American Indian Program. Joel B. Hagen, assistant professor of history at

Radford University, undertook a study of the Institute for Research in Tropical America, predecessor of the Smithsonian Tropical Research Institute (STRI) in Panama. Dr. George Angehr also studied the institute for a bilingual (Spanish-English) exhibition on the historical development of tropical biology titled "Parting the Green Curtain: The Evolution of Tropical Biology in Panama."

A number of new publications were added to the Archives bibliography, based at least in part on research done at SIA. University of Minnesota historian Dr. Sally Gregory Kohlstedt added articles on various aspects of museum history to the Archives bibliography. These articles included "History in a Natural History Museum: George Brown Goode and the Smithsonian Institution," in *The Public Historian* 10 (1988): 7-26; "Curiosities and Cabinets: Natural History Museums



Among the architectural drawings being conserved by the Smithsonian Archives using funds from the Research Resources Grant Program was this original drawing of a South Front Elevation, submitted by architect John Notman for the 1846 competition for the design of the Castle.



This photograph of pet tapirs being fed by the staff at the Smithsonian Tropical Research Institute in Panama was discovered by the Archives in the papers of Alexander Wetmore, the Smithsonian's sixth secretary.

and Education on the Antebellum Campus,” in *Isis* 79 (1988); and “Museums on Campus: A Tradition of Inquiry in Teaching,” in *The American Development*, edited by Ronald Ringer, Keith R. Benson, and Jane Maienshien (University of Pennsylvania Press, 1988). David L. Hull of the University of Chicago published *Science as a Process: An Evolutionary Account of the Social and Conceptual Development of Science* (University of Chicago Press, 1988). Tom D. Crouch of the National Museum of American History published “Capable of Flight: The Feud between the Wright Brothers and the Smithsonian,” in *Invention and Technology* (volume 2, 1987).

The Archives continued its Research in Progress lecture series and sponsored specialists in a variety of topics. Edward F. Rivinus spoke on “The Versatility of Spencer F. Baird,” and Keith Benson of the University of Washington discussed “The American Society of Zoologists, 1890–1990: One Hundred Years of Organizing the Biological Sciences.” Katherine Boyd finished the year by speaking on “Conrad Gessner (1516–1565) and Ornithological Illustration.”

Projects

The SIA Oral History Project continued its interviews of Institution scholars and administrators, bringing the collection total to 338.5 hours of tape recording, accompanied by 5,800 pages of transcripts. The Archives resident historian traveled to Panama to conduct interviews on the history of tropical research at the Smithsonian Tropical Research Institute (STRI). Joel B. Hagen, Neal G. Smith, and Ira Rubinoff gave interviews to the Archives on the history of STRI. In addition, a series of interviews was begun with Theodore H. Reed, former director of the National Zoological Park, in conjunction with the centennial of the Zoo. Joseph A. Cain donated an interview with paleontologist Frank C. Whitmore, Jr.

The Smithsonian Videohistory Program continued to support the work of Smithsonian historians and curators by documenting the history of science and technology on videotape. This year’s projects included group interviews with a team of astronomers and optical scientists who designed and developed the Multiple Mirror Telescope on Mount Hopkins, Arizona, and interviews with artisans and technicians who make mechanical clocks using equipment spanning three generations. While at STRI, the Archives historian began planning a series of video interviews as part

of a multiyear project tracing the role of Smithsonian scientists as policy advisers on the conservation of endangered species.

As part of the ongoing review of the Smithsonian photographic collections, staff surveyed more than seven million photographs in fifteen hundred collections. Documenting part of this review is a volume titled *Guide to Photographic Collections at the Smithsonian: The National Museum of American History*, which will be published late in 1989. The staff is also working on volume 2, which describes photographic collections in the Smithsonian science bureaus.

Smithsonian Institution

Libraries

The Smithsonian Institution Libraries (SIL) has a long and interesting history. A recently published article on the history of SIL by Nancy E. Gwinn, assistant director, Collections Management, outlines the controversy and intrigue in the early years of the Libraries. Today, controversy still surrounds SIL as it faces the challenge of preserving its rare collection while ensuring access to current research and scholarship. Escalating costs of journals also threaten the ability of SIL—and of all research libraries—to remain on the cutting edge of up-to-date information.

In spite of these concerns, the richness of the historical collections remains a source of pride, and SIL's fourteen branches scattered in thirty-six locations throughout the Washington, D.C. area; New York City; Cambridge, Massachusetts; Mount Hopkins, Arizona; and the Republic of Panama are a mecca for scholars and researchers. The Libraries collections number 1,020,000 volumes, including more than 20,000 journal titles and 35,000 rare books.

A member of the Association of Research Libraries, SIL is divided into three operational divisions—Research Services, Collections Management, and Automated Systems—and a Planning and Administration Office. Highlights of the work of these three divisions are presented below.

Research Services

The Research Services Division provides Smithsonian staff, outside scholars, and the public with information. This year, the staff answered 57,745 questions. A typical branch, such as the Cooper-Hewitt Museum in New York City, averages thirty-five phone inquiries a day.

The branches also provide information by circulating books or making photocopies from the SIL collections. This year, 42,684 such exchanges were made. Almost one-quarter of these were loans from one branch to borrowers at another. Another 6,032 were lent to libraries throughout the country in response to requests from researchers elsewhere. SIL branches also borrow books and acquire photocopies from other libraries and purchase copies from commercial document delivery services to meet local users' needs for publications not owned by SIL. This year, SIL obtained 12,328 outside publications for Smithsonian researchers. Software developed by the Woodrow Wilson Center has been installed in the SIL Loan Unit to assist in tracking borrowed items.

To acquaint users with new sources of information and to organize it into manageable segments for them, staff of the

branch libraries create lists of new acquisitions, compile bibliographies, and offer other services for users. Because the demand for information retrieval services is so great, staff in the Research Services Division continue to perfect these skills, particularly in the area of computerized data base searching. The division is also working on ways to improve future collection and analysis of statistics at SIL. To facilitate these efforts, the chief of the National Museum of American History branch library, who serves concurrently as manager of the division's History and Art Unit, spent three months as a senior management intern at the National Agricultural Library (NAL) in preparation for a report highlighting the cost analysis of the functions performed by staff of NAL's Public Services Division. This report will serve as a model for other branches of the SIL.

The Research Services Division is also responsible for ensuring that collections are properly housed and that adequate study space is provided for users. This requires extraordinary creativity on the part of the staff, because the stacks in six of the fourteen branches are already full. Patience and persistence were required this year during the renovation of three SIL branches: the Museum Reference Center, the branch at the Smithsonian Environmental Research Center, and the area surrounding the Dibner Library of the Special Collections Branch. The branch library at the Tropical Research Institute in Panama continued its ongoing struggle against water leaks, insects, and power outages.

Collections Management

Preservation of SIL's books and journals is a growing concern of the Collections Management Division. This year, the division focused on preserving the two thousand catalogues, guides, and other materials in the SIL collections that were produced as a result of world's fairs and regional expositions.

To accomplish this task, the SIL contracted with Research Publications, Inc., to publish this information on microfilm. The result of this joint project is an exposition microfilm collection titled *The Books of the Fairs*. The collection features more than eight decades of world's fairs from 1834 to 1915. In a fortunate coincidence, SIL received through the Cooper-Hewitt Museum more than one thousand additional world's fair books and pamphlets from the estate of collector Larry Zimmerman. Many of these have been incorporated into the filming project. These materials, most of which were published in the late nineteenth century, have deteriorated greatly because of poor paper quality. The microfilm publi-

cation will ensure that the contents are preserved.

The availability of microfilm will also provide other libraries and researchers with greater access to this valuable body of materials. The division's Preservation Services unit, which manages this project, has embarked on planning for a more general preservation replacement program to cover all SIL branches.

Microfilming is only one preservation technique. In recent years SIL has increased resources for binding paperbacks and journal issues as a way to protect these newly purchased works. The Binding Purchasing Section implemented a new binding contract this year and installed a computerized system that has improved communication and work flow. The SIL's Book Conservation Laboratory applies sophisticated conservation techniques to stabilize and restore rare and valuable books. The Women's Committee of the Smithsonian Associates awarded \$4,000 to SIL's Cooper-Hewitt Museum branch to restore a rare fifteen-volume text titled *Collection of Specimens of the Textile Manufactures of India*, by J. Forbes Watson (1874).

In addition to dealing with preservation concerns, the division is responsible for selecting and acquiring new materials. Many new materials are acquired through publication exchange agreements with 3,500 educational and research institutions around the world that enrich SIL collections. The Libraries also manage the Smithsonian International Exchange Service (SIES), which supplies shipping services for U.S. universities, institutes, and other nonprofit organizations. This year SIES installed sophisticated computerized postal equipment to increase productivity and provide greater management control. By March 1989, SIES had shipped 80,839 pounds of mail, a significant increase over previous years.

SIL's collection in aviation history, located in the National Air and Space Museum branch, is considered one of the most comprehensive in the nation. A donation from the Federal Aviation Administration (FAA) library has added technical reports and memoranda dating from 1919 to 1968 from the FAA and the National Aeronautics and Space Administration's predecessor, the National Advisory Committee on Aeronautics (NACA), to the museum's holdings. The Burndy Library of Norwalk, Connecticut, completed its generous gift to the Smithsonian by sending nine volumes highlighting works by Boethius, Christopher Columbus, Thomas Edison, and Guglielmo Marconi. All of these noted figures number among the two hundred "heralds of science," which Bern Dibner selected for inclusion in his book of that title (1955, 1980). The Dibner Library, Special Collections branch, ac-



Dr. Barbara J. Smith was named new director of the Smithsonian Institution Libraries in July. Dr. Smith (left) talks with Dr. Robert S. Hoffmann (right), assistant secretary for research, at a reception given to welcome her. (Photograph by Laurie Minor)

quired an extremely rare account, published in 1666, of the use of a Campani telescope in observations of spots on Jupiter.

Automated Systems

SIL relies almost exclusively on automated systems and processes for creating and maintaining a data base of cataloguing and indexing records, which the Automated Systems Division maintains and manages. All the catalogue records are entered into a national bibliographic utility called On-line Computer Library Center (OCLC); this creates an on-line record for each title held at SIL. About ten thousand libraries, including the Library of Congress, are members of OCLC. Each of these libraries creates records of its holdings. The twenty million OCLC records are shared by all contributing members for purposes of cataloguing, reference, and inter-library loan. The records entered by SIL staff into OCLC are also linked to SIBIS, the Smithsonian Institution Bibliographic Information System. SIBIS now includes an on-line bibliographic data base that describes journal articles featured in journals held at the Panama branch. In addition to OCLC and SIBIS, SIL cataloguers use CD-ROM (compact disk, read-only memory) technology to access the Library of Congress List of Subject Headings, the national authority. SIL staff continued testing and implementing a new SIBIS Bibliographic Processing System that will offer researchers improved computerized search techniques.

A multiyear program to convert old manual records to machine-readable format has permitted SIL to add to its on-line bibliographic data base, which can be accessed using a variety of search keys, such as subject, author, and title, from any location within the Institution. The increased ease of accessing important works is benefiting users throughout



Viewers enjoy the Smithsonian Institution Libraries exhibition "Stratigraphy's Golden Age: Murchison and His Silurian System," Dibner Library, Special Collections Branch, in July. The exhibition was mounted in conjunction with the meeting of the 28th International Geological Congress. (Photograph by Hugh Talman)

the Institution, but especially those interested in the collections in anthropology, mollusks, aeronautics, and fashion and design.

During 1989, SIL continued to catalogue previously uncatalogued collections, including many rare items located mainly in the Cooper-Hewitt Museum branch and in the collections of the Dibner Library, Special Collections branch. The SIL bibliographic data base now has more than 402,000 records, all of which conform to the highest bibliographic standards.

Automated circulation via SIBIS was installed at branches at the National Museum of African Art, the National Zoological Park, the National Air and Space Museum, and Central Reference and Loan Services. To make it easier to locate and reserve books requested by other users, officials at these branches have issued bar-coded library cards to use for checkout. At these and other branches, more sophisticated data on library usage will also be available. SIL has acquired the ability to download sets of records from SIBIS in machine-readable form for later manipulation by personal computer software. This ability will be used by the branch

librarians to produce specialized bibliographies, new acquisition lists, and other user services.

After a long testing period, the SIL local area network (LAN) communications server now allows sharing of modems and easy access for SIL's administrative staff to the LAN from numerous external hosts, including OCLC and other national data bases. Systems staff also provided access to the Institution's electronic mail system and to BITNET, a national network. Division staff installed software for computerized office functions on the LAN for use of calendar, scheduling, notebook, and calculator features.

Public Programs

In November, SIL presented a public lecture delivered by Paul Vassallo, director of the Washington Research Library Consortium, on the consortium's plans to build a "Super-Library" in the metropolitan area. SIL's exhibition in the Dibner Library on "Marbled Papers in Books" continued through December. Further exhibition activities were curtailed during renovation of the American History Building until July, when SIL opened with "Stratigraphy's Golden Age: Murchison and His Silurian System."

The SIL Publications Program was awarded three grants totaling more than \$13,000 this year. Two from the Atherton Seidell Endowment Fund were for production costs for *Books of the Fairs* and for a lecture that SIL will publish next year, and one from the Women's Committee of the Smithsonian Associates was earmarked for costs for the fairs book. SIL staff published books and articles in professional journals, served on national library and information science committees, delivered papers, and participated on panels at professional meetings.

With funding from the Smithsonian Foreign Currency Program and the National Science Foundation, the Libraries published nine titles this year in its Translations Program. The program provides Smithsonian researchers with English translations of scholarly monographs originally published in other languages. SIL catalogues the translations, distributes free copies to libraries internationally, and registers the published translations with the National Technical Information Service to ensure their continued availability to scholars.

Smithsonian Tropical Research Institute

The Smithsonian Tropical Research Institute (STRI) is devoted to promoting basic research in the tropics, training students for such research, and supporting efforts in conservation and public education to ensure the future existence of tropical environments for people to enjoy and for scientists to study. Tropical communities such as rainforests and coral reefs reveal the most elaborate and complex forms of interdependence among species that we know. Now that we are becoming more aware of the interdependence between the various ecological communities of our planet, the study of tropical communities is becoming a more urgent priority.

STRI has two major assets for tropical biologists. First, it is located in Panama, on a narrow bridge of land between two oceans with very different ecological properties. The oceans were separated only three million years ago by the isthmus of Panama. The modern marine communities and the excellent fossil deposits from both coasts spanning the past five million years provide an unequaled record of a magnificent natural experiment in evolution. Second, STRI is custodian of the Barro Colorado Nature Monument, 13,000 acres of tropical forest surrounding the central part of the Panama Canal. Its centerpiece, Barro Colorado Island, a site for tropical research for more than sixty-five years, is the most nearly intact, protected tropical forest community readily accessible from a metropolitan center in the world. The unequaled background of information on the island's flora and fauna provides a superb foundation for future research.

To promote tropical biology, STRI supports a scientific staff of twenty-six who conduct research in a variety of tropical countries. Continued collaboration with officials from the Republic of Panama facilitated the work of more than 250 visiting researchers representing twenty-four nations who worked at STRI during 1989. To accommodate the work of resident staff and visiting scientists and students, STRI maintains a laboratory, offices, and a major library in Panama City; a well-equipped field station on Barro Colorado Island, with computing facilities, air-conditioned offices and laboratories, and facilities for the study of plant physiology; and marine laboratories on both coasts, one well-equipped for the study of molecular evolution. STRI also offers short-term fellowships for graduate students and undergraduates and long-term fellowships for predoctoral and postdoctoral candidates.

This year members of the staff and visiting scientists and students published more than two hundred works, including two books—*Bryozoan Evolution*, which STRI scientist Dr. Jeremy B.C. Jackson coauthored with Frank McKinney, and

Ecology and Natural History of Tropical Bees by Dr. David Roubik.

Research Highlights: Evolutionary Consequences of Dividing the Ocean

When the isthmus of Panama formed, previously homogeneous populations of marine organisms were divided, changing conditions in which each lived. STRI scientists are interested in studying how these events affect the evolution of the populations involved.

Isolation allows two populations to diverge. How should we measure this divergence? What affects the degree of divergence? Does it make any difference whether a population is divided equally, as opposed to having a small subpopulation isolated from the rest? Several researchers at STRI are addressing these questions.

Dr. Haris Lessios of the STRI staff has compared different measures of genetic divergence between “geminate pairs” of sea urchins, twin pairs of species that descended from ancestral populations split by the isthmus. Differences in enzymes produced at thirty-one different genetic loci suggest that three of these species diverged at quite different rates. When Dr. Lessios examined changes in mitochondrial DNA, he found that members of each species pair had diverged only slightly. Thus mitochondrial DNA may be a much better “molecular clock” than even a large set of enzymes.

STRI scientist Dr. Nancy Knowlton is comparing levels of divergence in morphology, color pattern, behavior, biochemistry, enzyme characteristics, and mitochondrial DNA between the members of each of nineteen geminate pairs of species of snapping shrimp in the genus *Alpheus*. She is also comparing the divergence between members of the geminate pairs with divergence between reproductively isolated but morphologically similar populations (sibling species) not separated by obvious geographic barriers. Did the latter diverge as a result of the isolation of a small subpopulation from a parent species? This project has been made feasible by a comprehensive revision of the taxonomy of eastern Pacific *Alpheus*.

Dr. Laurel Collins, a STRI postdoctoral fellow, is studying the changes that have taken place in the communities of bottom-dwelling (benthic) foraminifera (unicellular microorganisms) during and after the formation of the isthmus of Panama. Benthic foraminifera are represented on both sides of the isthmus, apparently at comparable depths, during time periods ranging from more than a million years before the

isthmus divided the seas to the present. Her study should provide information on both the ecological changes that occurred as a result of the dividing of the seas and the types of evolutionary divergence that this land barrier permitted.

Research Highlights: Sexual Selection and Speciation

An essential aspect of understanding tropical diversity is learning how new species evolve. A critical stage in the transformation of two populations into separate species is achieved when numbers of each population fail to recognize members of the other as suitable mates. The criteria by which females choose their mates—an important aspect of sexual selection—and the ways these criteria evolve can play an important role in speciation.

In beetles, a female is not usually concerned about which male copulates with her but whether the copulation fertilizes her eggs. Thus a male's courtship—his attempt to persuade the female to accept fertilization—may consist only of his behavior during copulation; thus this becomes the primary object of sexual selection. Species of the same genus of beetle usually have somewhat different copulatory behaviors. Does this mean that divergence in copulatory behavior plays a role in speciation?

Dr. William Eberhard of the STRI staff has compared the copulatory behavior of two species of *Altica*, a chrysomelid beetle, in some detail. A female *Altica* has numerous barriers that a male must overcome to fertilize her eggs. She may prevent the male from inserting his packet of sperm; she may discard, unused, most or all of the sperm after copulation; or she may absorb some of the sperm rather than storing them to fertilize her eggs. The copulatory behavior that leads to fertilization differs greatly between the two species. This difference apparently suffices to keep the species separate; forced matings between the species yield viable, fertile hybrids. Such studies are being extended to other pairs of species.

Dr. David Zeh, STRI postdoctoral fellow, and collaborator Jeanne Zeh are continuing their three-year postdoctoral study of sexually dimorphic pseudoscorpions that disperse from one fig tree to another, often in large groups, under the elytra (hard outer wings) of harlequin beetles. When on the beetles, males set up mating territories, and sexual selection can be intense. On fig trees where harlequin beetles develop as larvae, however, males find females hard to locate and impossible to herd into guarded harems.

This species of pseudoscorpion is remarkably variable.



The Earl S. Tupper Research and Conference Center of the Smithsonian Tropical Research Institute, Panama, was completed this year. (Photograph by Marcos A. Guerra)

How much of this variation is inherited, and how strong is the correlation between a gene's effect on the two sexes? Also, how rigid is the trade-off between first reproduction at an early age and large size? The Zehs are studying the quantitative genetics of variation in size and developmental rate in order to answer these questions.

The calls of male tungara frogs *Physalaemus pustulosus* are being computer-synthesized by Dr. Michael Ryan of the University of Texas at Austin and Dr. A. Stanley Rand of the STRI staff to determine what components of the call are crucial to attracting females. The tungara's call consists of a "whine," often followed by one or more "chucks," which render the male frog more attractive both to females and to predatory bats. In Ecuador, Ryan and Rand found that *Physalaemus coloradorum*, a close relative of the tungara frog, do not distinguish between calls with and without chucks. Chucks are not intrinsically attractive to all *Physalaemus*.

Research Highlights: Learning What Lives in Tropical Communities

Dr. Norman Duke, who recently joined the staff of the oil spill project to head studies of mangrove forests, found the mangrove *Pelliciera rhizophorae* growing along the Carib-

bean shore. Fossil *Pelliciera* had been discovered in the Caribbean, but living trees had previously been known only from the eastern Pacific. Duke has also found *Nypa* palms, presumably introduced accidentally from Malaysia, in Caribbean Panama.

Even on an island as well studied as Barro Colorado, new species remain to be discovered. William Hoffman, a student employed by Dr. Stephen P. Hubbell of Princeton University to work on STRI's Forest Dynamics Project, has found a blue-flowered *Faramaea* treelet of a species new to Barro Colorado Island and *Quiina* trees, a genus not previously known from Panama, in two 1-hectare plots on the island.

Dr. Nancy Garwood, a STRI research associate, is just completing the fieldwork for her guide to the taxonomy, physiology, and ecology of the seedlings of Barro Colorado, and will soon be moving to the British Museum to write up her results.

Research Highlights: Interrelations in Tropical Communities

On Barro Colorado Island, the shortage of fruit and new leaves in the forest plays a major role in limiting the numbers of many kinds of animals. To assess whether seasonal changes in soil moisture content govern the times of year at which different species of plants produce flowers, fruits, and new leaves, Dr. S. Joseph Wright of the STRI staff has irrigated two 2.25-hectare plots on Barro Colorado Island for four successive dry seasons.

Irrigation had little overall measurable effect on canopy trees, but it had considerable effect on smaller trees and shrubs in the forest understory. It abolishes the natural rhythms in soil moisture and soil nutrients released from decomposing leaf litter. Wright finds that the seasonal rhythms in leaf flush of the understory shrubs *Psychotria* and *Piper* break down progressively from year to year on irrigated plots. *Psychotria furcata*, a plant that puts out its leaves during one of the first months of the rainy season in the control plot, has lost much synchronization in the experimental plot. Under natural conditions, *Piper cordulatum* produces new leaves throughout the rainy season, but none during the dry season. On the irrigated plots, its avoidance of the dry season has progressively relaxed. Under natural conditions, the march of the seasons presumably "entrains" these rhythms. It appears, however, that irrigation during the dry months drowns the entraining signal(s).

On July 5, 1989, Barro Colorado Island experienced the effects of a major storm. This storm overturned 30 percent

of the trees on some of Dr. Wright's plots, both complicating the analysis and providing new opportunities to examine natural regenerative processes in the forest.

STRI is continuing its support for the mapping of all stems greater than 1 centimeter in diameter on a 50-hectare plot of lowland dipterocarp forest in Pasoh Reserve, Malaysia. This project has been undertaken by the Forest Research Institute in Malaysia. Dr. Stephen P. Hubbell of Princeton University planned the project so that results could be directly compared with the 50-hectare forest dynamics plot on Barro Colorado Island. This comparison has yielded dramatic results. The Pasoh plot has roughly 50 percent more stems than does the Barro Colorado plot, which has 235,000. Pasoh has more than 800 species, compared with Barro Colorado's 303. These long-term studies reveal just how different New and Old World forests are and keep us searching for the factors that generate such differences in forest structure.

Research Highlights: The Impact of Man

The concentration of carbon dioxide in the Earth's atmosphere is rising and may double in the next 50–100 years. If this happens, the Earth may become much warmer, and rainfall patterns may be radically altered. How does increased carbon dioxide influence the growth and physiological behavior of tropical plants? To approach this question, Dr. Lewis Ziska, a postdoctoral fellow at the Smithsonian Environmental Research Center (SERC), Dr. Alan Smith of the STRI staff and Dr. Bert Drake of the SERC staff, raised nine species of tropical plants in laboratories on Barro Colorado under normal and twice normal levels of carbon dioxide. These species included a variety of growth forms, including forest trees, root crops, and grasses. They also included C₃ and C₄ plants, a C₃/C₄ intermediate, and plants with crassulacean acid metabolism (CAM). With increased carbon dioxide, all species used less water per unit of photosynthesis, and all but one had lower respiration rates. In general, increased carbon dioxide increased the total photosynthesis of C₃ plants, but not of C₄ or CAM plants.

Dr. David Roubik of the STRI staff has completed a study of the impact of invading Africanized honeybees on the native bees of French Guiana. From 1977 to 1989, he has periodically monitored bee visits in a 1-hectare field of *Mimosa pudica* surrounded by tropical forest in a region first invaded by Africanized honeybees in 1975. In 1977, 10 percent of the bees visiting flowers in this field were Africanized

honeybees, compared with 90 percent today. Africanized bees are poor pollinators; the total pollination rate in 1989 was half that in 1977, an important consideration for tropical agriculture.

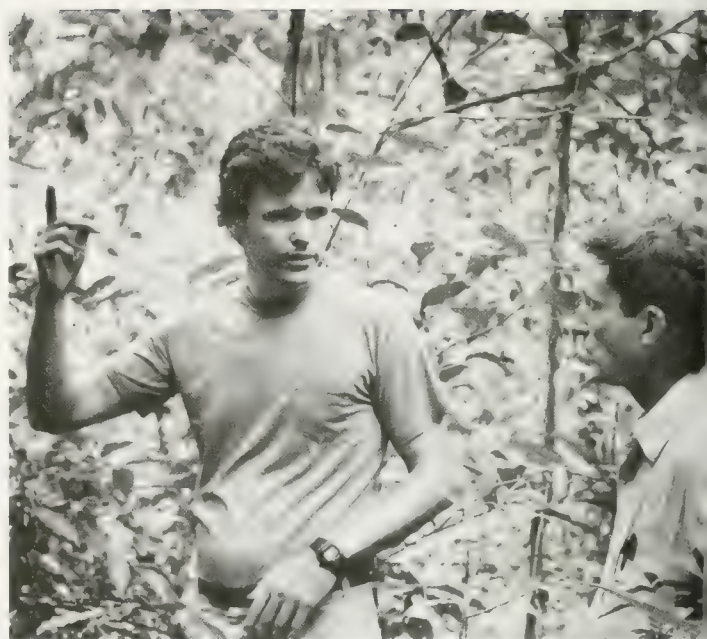
Dr. Anthony Ranere, a senior postdoctoral fellow at STRI, and STRI archaeologist Dr. Richard Cooke have located what appears to be human artifacts of the late Pleistocene in Herrera Province, on the Pacific coast of Panama. They found a deposit 10 to 20 centimeters thick, with scrapers resembling late Pleistocene tools from Guatemala and South America and projectile points resembling late Pleistocene ("Clovisoid") types found from Mexico to Costa Rica. If their age has been judged correctly, these are the first stratified human artifacts from the late Pleistocene found in Central America. More extensive excavations are planned for 1990 or 1991.

Oil slicks from the major oil spill in 1986 continue to be observed in Caribbean coastal waters near the Galeta Marine Laboratory. Samples of sediments collected this year oozed quantities of oil when cores were extracted. Analytical chemistry conducted in collaboration with the Bermuda Biological Station for Research will help researchers identify the sources of oil pollution, conduct detailed mapping of the spilled oil, measure the concentrations of oil in surviving organisms, and estimate the amount of oil remaining in the environment from the two-million gallon spill. Preliminary findings of the project were published in an article in the January 6, 1989, issue of *Science* magazine.

Putting Knowledge to Practical Use

Pacas are large tropical rodents that have the potential of being raised as farm animals in Panama. Dr. Nicholas Smythe artificially socialized pacas by placing the young together in cages without individual shelters. He found that they passed on their social characteristics—including communal nursing by the females of a group—to two successive generations without further human interference. Thus Dr. Smythe has created a domesticated animal in one generation by culturally transmitted rather than genetic change. Polygynous groups of these pacas are now being placed with campesinos in Panama.

In the area of Las Pavas near the Barro Colorado Nature Monument, Dr. Gilberto Ocaña of the STRI staff has continued his experiments to reclaim impoverished soils for agriculture. His 2.5-acre "forest garden" is four years old and



Dr. S. Joseph Wright of the Smithsonian Tropical Research Institute staff explains to Dr. Thomas Lovejoy, assistant secretary for external affairs, results from his novel project to determine the consequences of seasonal drought on plants, animals, and nutrients in the forest. (Photograph by Marcos A. Guerra)

now has six species of imported *Acacia*, two species of native *Inga*, and several plants that can be harvested for animal forage. The plants in this garden are growing well and supplying food for dairy goats kept in a nearby stable. The garden's *Acacia mangium* should eventually supply firewood and timber, and the goat manure should serve as fertilizer for a vegetable garden. The forest garden should supply suitable food and other necessities for man and mammals.

Outreach Activities

Organic remains are an important tool used to reconstruct subsistence patterns in the humid tropics. For this reason, one of the major training highlights this year was a six-week workshop titled "The Reconstruction of Subsistence in the New World Humid Tropics," organized by STRI archaeologist Dr. Richard Cooke. The event was held at STRI from February 20 through April 2, and fourteen Latin American archaeologists from six nations attended the program. The objective of the course was to introduce archaeologists with

limited experience in the analysis of botanical and faunal remains to related theoretical and methodological problems. The workshop was funded by Smithsonian Institution's International Exchanges and Educational Outreach programs and the Social Science Research Council.

STRI's first professionally designed and produced exhibition, "Parting the Green Curtain: The Evolution of Tropical Biology in Panama," was completed this year. The bilingual (Spanish-English) photographic exhibition was made possible by a grant from the Special Exhibition Fund and produced with assistance from the Office of Exhibits Central. The exhibition's twenty-three panels draw on information derived from STRI research and convey the incremental nature of science, illustrating how basic research can result in important practical applications. Opening first at the National Museum of Natural History, it provided a window on STRI for visitors to the National Mall. It was accompanied by a color booklet available to the public. The show then traveled to Panama, where it will be on display at the new Tupper Conference Center in late 1989 and 1990. Later, it will tour throughout Latin America.

Facilities Development

The new Earl Silas Tupper Research and Conference Center was completed this year. The center includes a laboratory building, a cafeteria, animal cages, and a two-story conference center with an exhibit floor and auditorium.

Substantial progress was also made this year on the Barro Colorado Island construction, including dormitory units for resident scientists and a two-level kitchen, dining, and conference building, all of which replaced structures dating from the 1920s.

Staff Appointments

The expansion of the terrestrial and marine research programs led to the establishment of two new positions this year: Dr. John Christy was appointed assistant director for marine research and Dr. Alan P. Smith, assistant director for terrestrial research. In February 1989, Dr. Smith took on the temporary assignment of special assistant to the director to perform liaison functions in Washington, D.C. Dr. Donald Windsor was named acting assistant director for terrestrial research. Mr. Edgardo Maravi was appointed as STRI's first development officer working from Washington, D.C.

MUSEUMS

Tom L. Freudenheim, Assistant Secretary for Museums

Anacostia Museum

During the Anacostia Museum's twenty-two-year history, it has grown from a small, experimental "museum of the people" to an influential institution recounting the history and culture of the African American experience. The museum evolved in this direction under the guidance of its long-time director, John R. Kinard. With great sadness, the Smithsonian notes the untimely and tragic death of Mr. Kinard, who, according to British expert Kenneth Hudson, developed the Anacostia Museum into one of a small number of true museums of influence in the world.

Although overshadowed by Mr. Kinard's death, the museum has continued its mission of serving as a national resource for exhibitions, scholarly and applied research, historical documentation, and interpretive and educational programs relating to African American history and culture in America.

Exhibitions

This year marked the completion of research for the highly successful major exhibition titled "The Real McCoy: African American Invention and Innovation, 1619-1930," which opened in May. Researched by historian Portia James, the show traces the pivotal role played by African American inventors from the era of Colonial technology to the early twentieth century, a period of modern industrial innovation. The exhibition celebrates well-known inventors such as Elijah McCoy, who invented a lubrication system for railroad locomotives and other engines. But it also looks at little-known, often-forgotten men and women, who as slaves, craftspeople, and workers helped develop innovative technologies. The exhibition catalogue will be published in early 1990. An interactive video program to encourage creativity and inventiveness in young people is under way.

Work was also completed on a District of Columbia Art Association (DCAA) exhibition titled "Inspiration: 1961-1989," which opened in January. This exhibition displayed the works of art by members of the DCAA. Coordinators of the exhibition included association members William Dorsey, Delilah Pierce, and Peter Robinson. Riddick Vann and Ophelia Speight organized the show and wrote the exhibition catalogue.

Louise D. Hutchinson, retired Anacostia Museum historian, continued research on an exhibition of the works of photographer P. H. Polk, which is scheduled to open in 1990. Staff also began research on a District of Columbia bicentennial exhibition tentatively scheduled to open in 1991.

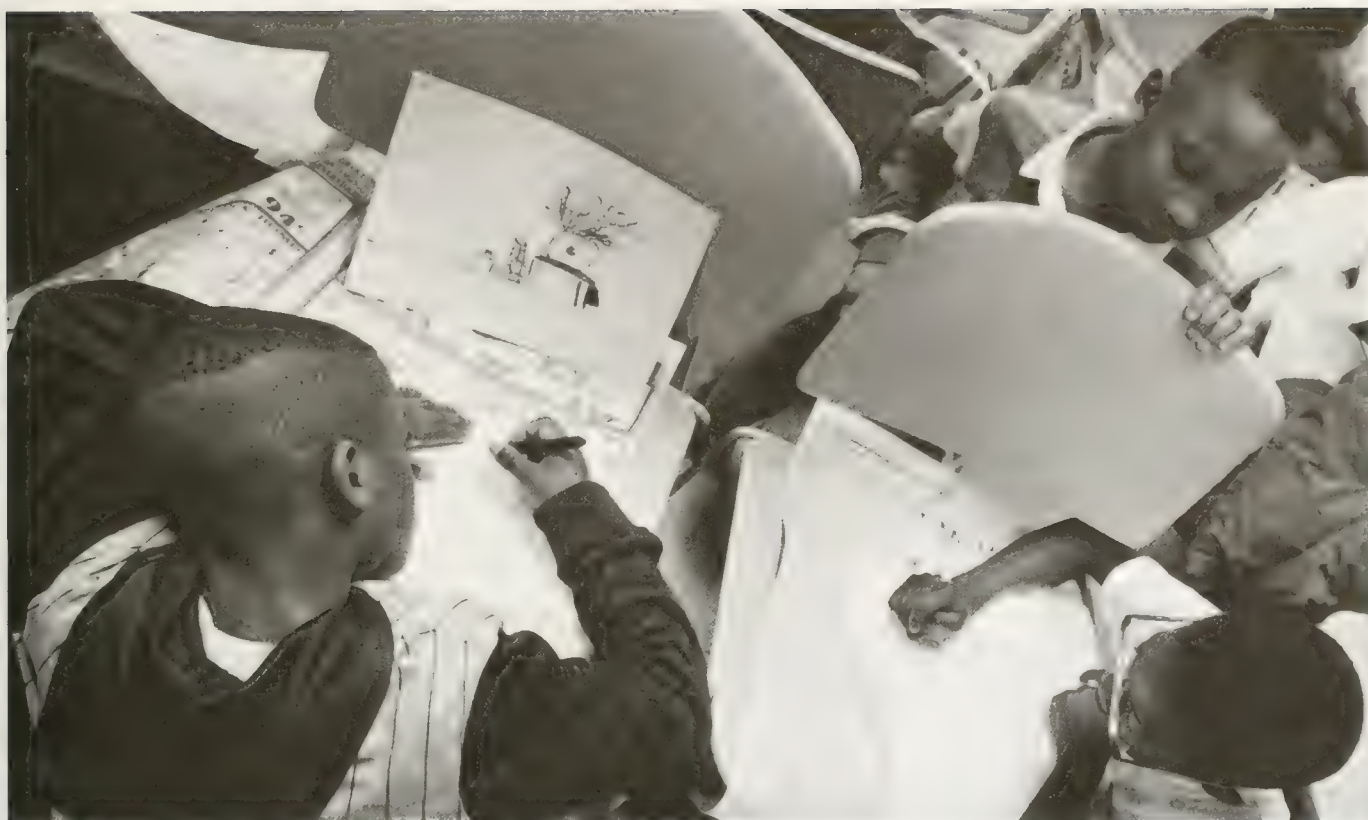


John R. Kinard (1936-1989). (Photograph by Harold Dorwin)

Education and Public Programs

The Education Department's aim is to involve the community in museum activities and to enhance the exhibitions on display. This year's Juneteenth Observance, the historic African American holiday that commemorates the day the slaves in Texas were officially informed that they had been emancipated, two and a half years after the fact, provided the museum with an opportunity to plan an event for the whole family. Games, competitive events, entertainment, demonstrations, films, and good old-fashioned fun were planned by museum staff and an enthusiastic advisory committee composed of an ample sprinkling of transplanted Texans, as well as interested citizens and representatives of public and private organizations from the wider metropolitan area and the Smithsonian's Office of Folklife Programs.

As a spinoff to the popular Real McCoy exhibition, the



The Anacostia Museum hosts an art class during the District of Columbia Art Association exhibition, "Inspiration: 1961-1989," which opened in July at the museum.

museum sponsored a four-day seminar that explored the exhibition in depth and developed new strategies for teaching this important segment in African American history. More than thirty area teachers enrolled in this unique course.

This year, the museum worked jointly with members of the D.C. Art Association in planning a full complement of programs for the popular art exhibition, "Inspiration: 1961-1988." The D.C. Art Association helped bring in artists to conduct tours, lectures, and demonstrations of particular art techniques. A panel discussion led by distinguished black female artists focused on societal attitudes, restraints, and controls that have brought acceptance of their work, as well as the changes needed to allow for wider acceptability and marketability. In addition to those activities, visitors viewed films and videos on African American art and artists and had the opportunity to create original silk screen prints in docent-led workshops.

Friends for the Preservation of Afro-American Culture, a group organized during last year's exhibition on the black church, has continued to thrive. It meets regularly in the museum to improve the members' proficiency in the preservation of artifacts. This year, local experts discussed topics dealing with oral histories and black genealogy. The group also took a field trip to the Moorland-Spingarn Research Center of Howard University to learn more about collections management.

The summer brought another collaboration for the Anacostia Museum, this time with the National Air and Space Museum. For the second year, the two bureaus conducted a series of aerospace workshops for youngsters. Participants built and launched hot air balloons, rockets, and kites. They also learned about the role of African Americans in the world of aviation and spaceflight.

Archives of American Art

The past year marked the thirty-fifth anniversary of the Archives of American Art and saw the opening of its handsome new administrative offices and regional center in midtown New York City. Designed by Harry Weese and Associates, the offices are located in the Equitable Center, which houses a number of arts activities—including a branch of the Whitney Museum of American Art.

The Archives has nine million items of primary documentation, including more than 400,000 photographs and 75,000 works of art on paper, which make it the nation's largest repository of archival source materials chronicling the U.S. history of the visual arts. Through its central office in Washington, D.C., its five regional centers, and interlibrary loan, it serves thousands of graduate students, faculty members, curators, collectors, and independent historians each year.

Acquisitions

The Archives in 1989 added to its collections some extraordinary material documenting art activity in the early to mid-twentieth century. Among these acquisitions were Helen Torr Dove's diaries and correspondence with her husband,

the renowned American and early modernist painter Arthur Dove (ca. 1920–1964), along with biographical data and other writings tracing his life and work. In addition, the Archives microfilmed the painter Andrew Dasburg's (1887–1879) correspondence, which includes letters from such art and literary notables as Louise Bryant, Mabel Dodge, Marsden Hartley, Hans Hofmann, D. H. Lawrence, John Marin, and Georgia O'Keeffe. Dasburg corresponded with many prominent figures during his lifetime, most of whom he knew well. Therefore, the collection is historically rich and important.

Known for its strength in materials from the Depression and the immediate postwar period, the Archives further enhanced scholarship in these areas with the recent acquisition of several significant groups of documents. These include Stuart Davis's material on the Artists' Union magazine *Art Front* and additions to the papers of Marcel Breuer and Joseph Cornell. The Archives was also fortunate to receive Charles Pollock's correspondence, which includes letters from his famous brother Jackson.

The papers of photographers and craftspeople are among other collections found at the Archives. This year, the Archives received papers from the photographer Nickolas Muray and the potter Maija Grotell. The newly acquired Norlyst Gallery files, the extensive records of the prominent art historian and former director of the Whitney Museum John I. H. Baur, and the papers of the folk art collector Herbert Hemphill add to the Archives coverage of art world activities.

Exhibitions

In its New York Regional Center at the Equitable Center, the Archives has permanent gallery space for the first time. Its inaugural exhibition commemorated the seventy-fifth anniversary of the 1913 Armory Show with a selection of papers from the collections documenting that milestone event. The next exhibition featured selections from new acquisitions, including documents from the Christopher Wilmarth, Joseph Stella, Robert Smithson, Yasuo Kuniyoshio, and Katherine Kuh papers. Following long practice, the Archives also lent documentary materials to museum art exhibitions throughout the country, including ones held at Washington's Corcoran Gallery, the Art Institute of Chicago, the Pennsylvania Academy of the Fine Arts, and the Graduate Theological Union in Berkeley, California.



Archives of American Art Board of Trustees President Richard J. Schwartz presents a drawing to Trustee Benjamin D. Holloway at a dinner in his honor on November 3. Mr. Holloway made it possible for the New York operations of the Archives to be based in the new Equitable Center complex. (Photograph by Steven Tucker)

Arthur M. Sackler Gallery

Research and Education

Scholarship in art history continued to thrive this year. Some 4,500 faculty members, graduate students and fellows, museum and gallery curators, collectors, and freelance writers and historians worked at the Archives centers or borrowed microfilm through the Interlibrary Loan Program. Earlier research at the Archives was also recognized in the form of acknowledgments and citations to the vast holdings that appeared in more than two hundred books, exhibition catalogues, articles, and dissertations published or completed during the year.

In addition, the Archives sponsored a variety of programs held across the country, including the U.S. Art Fair and a panel discussion in San Francisco; a weekend visit to museums, galleries, and private collections in the Miami/Coconut Grove area of Florida; and a variety of private tours of museum exhibitions, visits to artists' studios, and lectures all across the country.

Special Program Support

The Archives of American Art receives approximately half of its support from its members, its Board of Trustees, private corporations, and foundations. Without these contributions, the Archives would not be able to accomplish much of what it now does. Its oral history program, for example, was funded by the Lannan Foundation and gifts from Harry Kahn and Mrs. Jacob Kainen. Work documenting the visual arts in Southern California from 1900 to 1950 was given major impetus by grants from the Ahmanson Foundation and the ARCO Foundation, and completion of the Archives Philadelphia Documentation Project was ensured through a grant from the Pew Charitable Trusts. General operations and national collecting were supported by both the Brown Foundation, Inc., and the Henry Luce Foundation, Inc.

Collections Management

During 1989, the Archives made considerable progress in its long-term project to record all cataloguing information about its more than three thousand collections in the Institution's on-line, computerized data base for archival, library, and other special collections. The project, funded by grants from the J. Paul Getty Trust and the Andrew W. Mellon Foundation, aims to be on-line in a national data base network within the next year.

The Arthur M. Sackler Gallery's second year was punctuated by its intensive and far-reaching search for a director. In October, Dr. Milo C. Beach was named director of both the Arthur M. Sackler Gallery and the Freer Gallery of Art. The Sackler Gallery is devoted to exhibitions, research, and education about the art of Asia from the Mediterranean to Japan.

Dr. Forrest McGill, a specialist in the art of South and Southeast Asia, was named assistant director of the gallery. Dr. McGill had been director of the Museum of Art and Archaeology at the University of Missouri in Columbia and its curator of Asian art, as well as associate professor at the university.

Highlights of the year included a major effort to identify the diverse populations of Asians and Asian Americans in the Washington, D.C., area. Supported by funds from the Educational Outreach Program, the gallery's education staff commissioned a study and produced a report titled *Knowledge and Access*. The report, which is based on interviews with community members, provides information that can help the Sackler build a thriving relationship with the diverse populations of Asians and Asian Americans.

Exhibitions

Summer attendance at the gallery doubled this year as "Yani: The Brush of Innocence" captured the public imagination. The exhibition featured sixty-nine paintings by Wang Yani, a fourteen-year-old Chinese artist from Guanxi province in southern China. Each summer weekday, the exhibition was accompanied by free public programs on Chinese culture. Wang Yani, who has been painting since she was two and is already well known in her native land, is the youngest artist ever to have a one-person show at the Smithsonian.

As part of the events planned in conjunction with the exhibition, Yani traveled to Washington, D.C., to meet members of the press and the public at an informal family day marking the exhibition opening. The show was organized by the Nelson-Atkins Museum of Art, Kansas City, Missouri, and was sponsored by the Ministry of Culture, People's Republic of China. The national tour of the exhibition, Yani's visit to Washington, and public programs at the Sackler Gallery were made possible by United Technologies Corporation.

Two other major exhibitions brought a wealth of Islamic art to the public eye. "A Jeweler's Eye: Islamic Arts of the Book," organized by Dr. Glenn D. Lowry, curator of Near



A Reclining Prince, attributable to Aqa Mirak, Iran (Tabriz), ca. 1530, opaque watercolor and gold on paper mounted on an album page, appeared on the cover of the Arthur M. Sackler Gallery publication *A Jeweler's Eye: Islamic Arts of the Book from the Vever Collection*.

Eastern art, and Dr. Beach, included 160 of the finest examples from the great collection of eleventh- to nineteenth-century Persian and Indian paintings, drawings, manuscripts, calligraphies, and bookbindings assembled by Henri Vever (1854–1942), a Parisian jeweler. The exhibition was accompanied by two publications: *A Jeweler's Eye: Islamic Arts of the Book from the Vever Collection*, by Dr. Lowry and Susan Nemazee, and *An Annotated Checklist of the Vever Collection*, by Dr. Lowry and Dr. Beach with Roya Marefat and Dr. Wheeler Thackston. Both books were published by the University of Washington Press. The paperback edition of the catalogue won a 1989 award of merit from the American Association of Museums.

The Vever collection has a long and complex history, beginning with its mysterious disappearance during World War II and culminating in its eventual rediscovery in 1984 by Dr. Lowry and purchase by the Sackler Gallery in 1986. This fascinating story was explored in an hour-long feature on "Smithsonian World."

The art and architecture created during the dynasty of the legendary warlord Timur, better known in the West as Tamerlane, were the subjects of "Timur and the Princely Vision: Persian Art and Culture in the Fifteenth Century," an exhibition jointly organized by Dr. Lowry and Dr. Thomas Lentz, curator of ancient and Islamic art at the Los Angeles County Museum of Art. The exhibition, which was accompanied by a catalogue, was funded in part by grants from the

National Endowment for the Humanities, the National Endowment for the Arts, and the Smithsonian Institution Special Exhibition Fund. Indemnification was supplied by the Federal Council on the Arts and Humanities.

Public awareness of Sackler Gallery exhibitions was stimulated by eye-catching posters in area bus shelters and display advertising in the *New York Times*. These presentations were made possible by a generous gift to the Sackler Gallery Public Affairs Office from Mrs. Else Sackler.

Public Education

Public interest in Persian art stimulated by two exhibitions on the subject prompted the gallery to hold a Celebration of Persian Art and Culture between February and March of 1989. Cosponsored by the Foundation for Iranian Studies, the event offered free public lectures, films, and workshops, as well as a concert and readings from the *Shahnama*, the tenth-century epic poem that traces Iran's history from the first mythical kings to the downfall of the Sasanians in the mid-seventh century.

Research

During the concurrent showing of two Persian art exhibitions, the Sackler sponsored an international symposium, "New Approaches to Persian Art and Culture," made possible by the generosity of Mrs. Arthur M. Sackler. A day-long session featured presentations by five noted scholars of Persian art.

This and numerous other research activities reflect the broad geographical range of the gallery's mandate. As members of the Bunkacho-Smithsonian Institution Collaborative Research Group, W. Thomas Chase, head of the Technical Laboratory for the Sackler and Freer galleries, and Paul Jett, senior conservator, discussed ways to develop and conduct joint research efforts with the Bunkacho, Japan's Agency for Cultural Affairs.

Several scholars on the Sackler Gallery staff were the recipients of major grants this year. Dr. Ann C. Gunter, assistant curator of ancient Near Eastern art, Mr. Chase, and Mr. Jett received a Smithsonian Scholarly Studies grant for their research on the ancient Iranian metalwork in the permanent collections of the Freer and Sackler galleries and for the publication of an illustrated catalogue. The grant

Conservation Analytical Laboratory

supports the team's travel, as well as that of a collaborator on the project, Dr. Pieter Meyers, head of conservation, Los Angeles County Museum of Art.

Dr. Shen Fu, curator of Chinese art, traveled to Brazil, Argentina, and China under the second year of a Smithsonian Scholarly Studies Program grant for research on the Chinese painter Chang Dai-chien (1899–1983). He and Jan Stuart, assistant curator of Chinese art, received a Special Exhibitions Fund implementation grant toward a retrospective exhibition of work by this great Chinese painter. The show will open in 1991.

Ann Yonemura, assistant curator of Japanese art, was awarded a Smithsonian Special Exhibitions Fund grant to plan a major archaeological loan exhibition from Japan.

Louise Cort, assistant curator of Asian ceramics, began a nine-month leave of absence based in Thailand to conduct field research on Southeast Asian ceramics.

The archives of the Freer and Sackler Library contain a wealth of rare early photographs of the lands and peoples of Asia. The Conservation Center for Art and Historic Artifacts of Philadelphia surveyed the condition of this collection and made recommendations for its treatment under a grant from the Women's Committee of the Smithsonian Associates.

Among the many visiting scholars in residence at the Sackler Gallery this year was Professor Huashan Chao, a specialist in Central Asian and Chinese Buddhist art who serves as director of the Arthur M. Sackler Museum of Art and Archaeology at Peking University, now under construction. Dr. Massoud Azarnoush began a Smithsonian Postdoctoral Fellowship to study a Sasanian archaeological site in Iran using the Herzfeld Archives housed in the library of the Freer and Sackler galleries.

Acquisitions

Dr. and Mrs. Kenneth X. Robbins donated a late eighteenth-century Nepalese painting, *The Siege of Mathura by the Armies of Jarasandha*. The Japanese collections were enhanced by a gift from ceramist Shimizu Uichi (born 1926) of a glazed jar, which he made in 1988. Museum purchases included *Scholars in a Wintry Forest*, a painting by Ming dynasty Chinese artist Wen Zhengming (1470–1559), and a group of four landscape paintings by the Qing dynasty Chinese artist Gong Xian (ca. 1617–1689).

The Conservation Analytical Laboratory (CAL) is the Smithsonian's specialized center for research and training in the conservation and technical study of museum objects. CAL's work also encompasses issues related to archaeology and art history. A staff of specialized physical scientists, conservators, art historians, and archaeologists provide assistance and advice to specialists in other Smithsonian bureaus and outside the Institution. CAL also operates a training program that offers a wide range of educational opportunities to conservators and other museum professionals at various levels of expertise and experience. Both the general public and museum professionals benefit from the wide array of the laboratory's information services.

Archaeometric Research

Known for its expertise in learning about past cultures by studying archaeological artifacts, CAL pursued a wide range of such projects in 1989. Questions ranged from studying where the early bronze age Anatolian metal craftsmen procured the tin used to produce the numerous surviving bronze artifacts to analyzing how the Spanish conquest affected the production techniques and distribution mechanisms for ceramics among the Hopi people. Other researchers at CAL explored whether mothers in hunter-gatherer societies breast-fed their babies longer than those in settled agricultural groups.

Art historians pondered the painting techniques and materials used by the American artist Albert P. Ryder that created distinctive effects unique to his work. Other researchers explored how neolithic craftsmen in what is now Czechoslovakia produced the Venus of Dolne Vestonice. Still other researchers analyzed the economic and political relationships between the various states emerging in the third millennium B.C. in the Middle East. All of these issues are part of CAL's extensive archaeometry program.

Teams of scientists and archaeologists or art historians jointly design projects, perform the experimental work, and interpret the data within the context of historic information. Many of these projects represent interinstitutional and even international collaborations in which scholars from outside the Smithsonian come to CAL's specialized facilities to work with experts on its staff.

To accommodate the demand for trace element analyses of archaeological ceramics, which has consistently increased over the last few years, CAL expanded its facilities for this activity at the research reactor of the National Institute for



Research Art Historian Ingrid Alexander of the Conservation Analytical Laboratory studies an autoradiograph of Albert P. Ryder's *In the Stable*. Neutron-induced autoradiography, among other techniques, is being used to study this artist's work. The laboratory, in collaboration with the National Institute of Standards and Technology, operates the only facility for this type of examination in the United States.

Standards and Technology by adding a second gamma spectrometry system. Grants from the Kress Foundation and the Smithsonian Society made it possible to proceed with the implementation of long-standing plans to build a special facility at the same reactor for neutron-induced autoradiography of paintings, which shows the distribution patterns of various pigments throughout the painting. This information is used to learn about materials used, artistic techniques, and the overall creative process. This unique facility will dramatically increase the number of paintings that can be studied with this technique each year.

Conservation Research

The goal of conservation research is to develop a basic understanding of how materials and objects change in time and what factors influence the rate at which these changes take place; then the crucial step is to translate this knowledge into effective treatment and prevention programs. Physical scientists and conservators at CAL collaborate to find the answers to a variety of research projects covering all aspects of conservation.

One multiyear project studies the effect solvents used to clean paintings have on long-term preservation. Although a variety of solvents are used for this process, little is known about the consequences of this practice, especially after repeated applications. Another major effort in collaboration with researchers at other institutions around the world is examining how shock and vibrations affect the stability of works of art in transit. In addition, the effects of variations in environmental conditions on these works of art are being investigated.

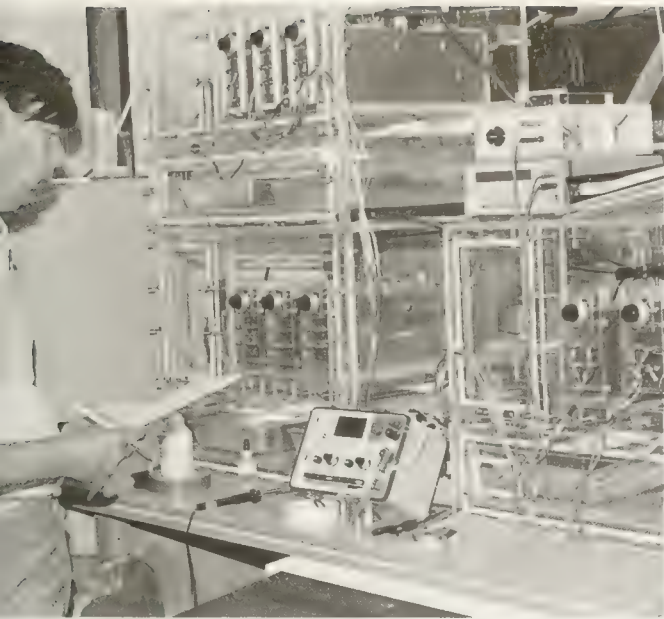
Studying preservation techniques for photographic materials is the focus of another CAL project. Researchers have established that there was variation in the studio technique of an early photographic process, the glass-collodion negative. Now they are investigating what effects these variations had on the photographic materials. In another line of investigation, scientists know that works of art on paper are sometimes disfigured by stains and other discolorations, causing them to need remedial treatment. CAL researchers design and test appropriate procedures that address basic problems related to the interaction of aged paper with various solvents. They also examine the chemical and physical changes that the paper may undergo and try to formulate conditions to optimize treatment efficiency with a minimal change in the paper's strength and textural appearance. The subject of another project is the validity of accelerated aging under a variety of conditions; this technique is mandated in the evaluation of the result of conservation work.

Insect infestations are a major problem in many museums, especially in textile collections. The use of insecticides is often unavoidable, but there is a dearth of knowledge on the effects various insecticides have on the color stability of textile dyes. To rectify this problem, CAL researchers evaluated the effects of some commonly used insecticides on delicate textiles. These and many other projects aim to add to the body of knowledge that conservation professionals worldwide depend on in their efforts to preserve our cultural heritage for future generations.

Conservation Training

In its third year, CAL's Furniture Conservation Training Program saw its first class of six students complete all required coursework for the program. After a year-long internship in laboratories nationwide next year, the students will be the first graduates. This program is an innovative way to fill the need for specialists in furniture conservation; museums across the country have felt this shortage for many years. The second class of seven students was selected from among a large number of applicants. They will begin their studies at the end of 1989.

In addition to its successful furniture conservation training program, CAL annually hosts a large number of interns and fellows at different levels of expertise and experience. Six recent graduates from academic training programs were selected for postgraduate internships, two at CAL and four in various Smithsonian museums. Seven students had intern-



Using specially designed instrumentation, Dr. Marion Mecklenburg, assistant director for conservation research at the Conservation Analytical Laboratory measures mechanical properties of the materials from which art objects are commonly composed. The resulting data can be used to predict how these objects will be affected by changes in environmental conditions.

ships with CAL conservators ranging from three months to one year, and two students prepared for an academic program by spending a year as preprogram interns. Two post-doctoral fellows in materials analysis and one in conservation science were selected to spend a year performing research at CAL.

For practicing conservators, CAL organized a total of eight advanced courses on specialty subjects such as textile dye analysis, color theory and measurement, exhibit and storage case materials, the fabrication and use of suction tables in paper conservation, and the conservation of earth science collections. The joint doctoral program with Johns Hopkins University to train conservation scientists continues to flourish. CAL staff taught two semesters of courses on conservation-related subjects and supervised the studies of three doctoral students.

As in previous years, CAL continues to be an active member of the Conservation Information Network (CIN), a data base of conservation literature maintained through an international collaborative effort. CAL provided assistance to conservators in the Smithsonian and other museums by performing 130 data base searches. CAL also contributed to the further buildup of the CIN data bases and enlarged its own rather unique collection of reprints from the conservation literature, a resource that now includes about 22,000 items. In addition to fulfilling 220 requests for conservation information from professionals nationwide, CAL addressed 725 questions from the general public dealing with problems such as the conservation of antique radios, music boxes, marine calcareous fossils, antique steam pumps, and more conventional "objects d'art."

Cooper-Hewitt Museum

The Cooper-Hewitt Museum began the year by welcoming Director Dianne H. Pilgrim. With new leadership, Cooper-Hewitt has established new goals for the future and has reaffirmed its mission to increase the understanding of design as the unifying element in all aspects of the man-made environment. More than just the visible envelope or surface packaging of a functional product, design is the organization and use of physical matter in our lives. The design concerns of the museum are virtually unlimited, encompassing fields as diverse as urban planning, architecture, industrial design, landscape design, interior design, textiles, fashion, theater arts, advertising, graphic arts, and crafts.

As the National Museum of Design, Cooper-Hewitt strives to encourage "good design," as well as to foster a greater understanding of the design process and to improve the dialogue between audience and designer. The museum pursues these goals through diverse programs, which include provisions for making the collections available for study, research, and display; educational programs for professionals and the general public; exhibitions; publications; and conferences keyed to significant design issues.

Collections

As a working laboratory for the study of design, Cooper-Hewitt is one of the Smithsonian's busiest collection centers. Its permanent collection of 170,000 objects ranges from the utilitarian to the fine arts and includes decorative arts, prints and drawings, textiles, wall coverings, and books from Europe, America, and Asia. The specialized library of 50,000 volumes contains more than 5,000 rare books, 3,000 trade catalogues, and subscriptions to 300 periodicals. Cooper-Hewitt also has important industrial design archives, including materials from Henry Dreyfuss, Donald Deskey, Ladislav Sutnar, George Kubler, Therese Bonney, and Gilbert Rohde.

As part of its outreach philosophy, the museum engages in an active loan exchange program with other museums. In 1989, 384 items were loaned to 42 other museums, and 1,471 objects were borrowed from 177 lenders for temporary exhibitions. The museum's library, an important resource for both design students and professionals, opened its doors to more than eight hundred outside users and circulated nearly three thousand volumes.

This year, too, was an active year for increasing the permanent collection. The museum added an additional 2,324 items in 1989 (385 by purchase, 1,937 by gift, and two by bequest). The year's most outstanding permanent

acquisition was the Ludmilla and Henry Shapiro Collection of Soviet porcelains, including more than 250 examples of tablewares and figural porcelains dating from the time of the Russian Revolution to the present. Unique in the United States, this collection provides an exceptionally complete survey of the propagandistic ceramics made and promoted in the Soviet Union. It was purchased with assistance from the Regents' Collections Acquisition Fund, matched by funds raised by Cooper-Hewitt's Decorative Arts Association. The purchase was also made possible by a special donation, in the form of a reduction in price, from the collectors.

The museum also received as a gift the remaining materials in the Donald Deskey Archive from the late designer. The museum already owned a portion of the materials, which were donated in 1975; the rest were in the museum's care on loan. The entire archive contains nearly 2,400 drawings and blueprints and more than 25 linear feet of documentary artifacts from every aspect of Deskey's career.

Collections that are growing and working at this rate obviously require continuous conservation and data management efforts. The museum's paper and textile conservators treated nearly four hundred objects in fiscal 1989. At the same time, computer catalogue systems were upgraded and interactive media applications began to evolve in an effort to increase public utilization of the collections.

Exhibitions

Cooper-Hewitt's exhibitions explore a variety of facets of design—from its processes and products to the ways that objects shape and are shaped by cultural conventions. Last year, two cross-cultural exhibitions highlighted this theme. The exhibition "Courts and Colonies: The William and Mary Style in Holland, England, and America" celebrated the 300th anniversary of the accession of William and Mary to the throne of England. Co-organized by Cooper-Hewitt and the Carnegie Museum of Art in Pittsburgh, this tribute to the Glorious Revolution included more than 250 works of art, architectural prints, drawings, furniture, ceramics, and silver from the late seventeenth and early eighteenth centuries.

The second major exhibit with a cross-cultural scope was part of the elaborate international celebrations for the bicentennial of the French Revolution. Cooper-Hewitt's contribution to the event was an exhibition titled "L'Art de Vivre: Decorative Arts and Design in France, 1789–1989." Funded by a generous grant from the Comit Colbert, it brought together more than six hundred works from public, private,

and corporate collections in France and the United States.

Other exhibitions with an international scope included showings of Dutch posters from the first half of the twentieth century, the drawings of twentieth-century architect Erich Mendelsohn, and landscape drawings of Rome and the surrounding countryside from the collection of the Vatican Library. Cooper-Hewitt also tapped its own permanent collections for three unique exhibitions: a presentation of American drawings dating from the 1830s to the 1930s; a survey of purses, pockets, and pouches illustrating various textile techniques from the early seventeenth century to the present; and a presentation of jewelry from the nineteenth century. An exhibition titled "The Intimate World of Alexander Calder," which opened in the fall, revealed personal objects created by the sculptor for family and friends. Organized by the Musée des Arts Décoratifs in Paris, the exhibition is accompanied by a book of the same title.

Future exhibition plans will focus on the enormous diversity of design as a human activity that imparts, organizes, and communicates values. To focus attention on design issues for the blind and other special audiences, the museum is in the process of organizing a participatory exhibition of architect-designed doghouses in cooperation with Guiding Eyes for the Blind, Inc. Still other future exhibitions will promote Cooper-Hewitt's rarely seen collections. And in the fall of 1990, the museum will present a collection-based project as part of a complex series of exhibitions and programs focusing on the theme of "Home: A Place in the World." The series is a cooperative effort of New York City museums and the New School for Social Research.

Exhibitions and Publications

Continuing a tradition of outstanding publications, the museum produced a wide range of books this year. Those of particular note include *Courts and Colonies: The William and Mary Style in Holland, England, and America*, a critically acclaimed 252-page catalogue. A thematic publication containing nine essays, *L'Art de Vivre: Decorative Arts and Design in France, 1789–1989*, accompanied the exhibition of the same name. Cooper-Hewitt also received a Federal Design Achievement Award for its 1985 publication *Wine: Celebration and Ceremony*.

Public Education

An important part of Cooper-Hewitt's effort to increase



This silverplated tea service "La Géométrie," designed by Henri Boulhet for the French firm Christofle in 1970, was featured in the Cooper-Hewitt's exhibition, "L'Art de Vivre." The tea service was presented as a gift to the museum in 1984 by Christofle.

public awareness of design is its roster of educational programs. This year, approximately six thousand students attended a wide range of courses, symposia, workshops, lectures, and study tours. In addition to programs held in conjunction with major exhibitions, topics on this year's calendar covered such widely diverse areas as art deco oceanliners, interior designs for Radio City Music Hall by Donald Deskey, needle arts, American ceramics, French and Italian garden design, the 1939 World's Fair, the architecture of Erich Mendelsohn, and magazine design. The museum sent an architectural study tour to Central Europe and is planning a similarly focused tour to the Soviet Union. As the sixth class graduated in May 1989, the Cooper-Hewitt/Parson's Master's Program in the History of Decorative Arts continued to provide invaluable professional training for future scholars and curators.

In an effort to expand and diversify its audience, Cooper-Hewitt forged new relationships with other organizations such as the Schomburg Library, the Studio Museum in

Harlem, various United Fund agencies, the Victorian Society, the Decorative Arts Society, the Attingham Society, a local YMCA, Hospital Audiences, and others. In celebration of Black History Month, a lecture series on African textiles was held for a sellout audience. The museum also initiated special programming for children and experimental programs for the entire family; the New York State Council on the Arts then gave the museum a grant for educational consulting services to develop these programs further. To improve exhibition interpretation for school groups, special audiences, and the public, the museum established regularly scheduled free gallery talks led by approximately thirty guides.

Audience

More than 136,000 visitors explored the museum's exhibitions in 1989; more than 70,000 poured into its landmark exhibition "L'Art de Vivre" alone. Exhibitions also brought

international attention to Cooper-Hewitt. "Courts and Colonies" opened in November 1988 under the gracious patronage of Her Royal Highness Princess Margriet of the Netherlands, who attended opening ceremonies with her husband Mr. Pieter Van Vollenhoven and their son Prince Bernard. "L'Art de Vivre" was visited by such notable guests as Madame François Mitterand, Ambassador and Madame de Margerie, French Consul General Benoit d'Aboville, Mayor Jacques Chirac of Paris, designer Philippe Starck, and actress Catherine Deneuve.

In addition to receiving public support, the museum was recognized by colleagues. Two U.S. Information Agency-sponsored groups of European museum administrators visited the museum this year, as did a group sponsored by the American Society of Industrial Designers. Cooper-Hewitt hosted a symposium on funding for small art institutions, which was organized by the Metropolitan Historic Sites Association. And last spring, museum professionals attended a special viewing and reception of "L'Art de Vivre."

Nearly two thousand members crowded into the museum's annual Garden Party; the next evening, another five thousand visitors of every age and background participated in New York City's annual Museum Mile Festival. Free concerts in the garden continued to attract diverse audiences throughout the summer.

Membership and Development

Many of Cooper-Hewitt's approximately six thousand members, individual and foundation benefactors, and corporate sponsors and patrons demonstrated their interest in design with continued financial support. Significant fund-raising accomplishments culminating in 1989 include grants from the Shell Oil Company and the Dutch American West-India Company Foundation, Inc., for "Courts and Colonies"; the Andy Warhol Foundation for the Visual Arts for "The Intimate World of Alexander Calder"; the Peter Krueger/Christie's Foundation, Inc., for an annual fellowship to a promising scholar; the James Smithson Society for the publication of a new visitor's brochure; Banco di Santo Spirito and the American Friends of the Vatican Library for "Views of Rome"; Van Munching & Co., Inc., for "The Modern Dutch Poster;" the Helena Rubinstein Foundation for scholarships in the Master's Program; and numerous other grants and in-kind gifts or donated services.

Corporations such as Air France; AMEV Holdings, Inc.; Anheuser Busch, Inc.; Henri Bendel; Bristol-Myers Com-

pany; Brunswick & Fils; Conde Nast Publications, Inc.; Consolidated Edison Company of New York; Hermès; IBM Corporation; Kay Jewelers, Inc.; Koppers Company, Inc.; Herman Miller; Nationale-Nederlanden U.S. Corp.; the New York Times Company Foundation; Rabobank, N.V.; and Rosenberg & Stiebel became corporate patrons and made financial gifts in support of specific projects or as contributions to meet a three-year challenge grant from the Andrew W. Mellon Foundation for a permanent research endowment. The museum made important progress in the second year of that drive, leading to the foundation's first installment on its pledge.

The Future

Under the aegis of its new director, the museum is striving to be more than just a showcase for design. Rather, it is working to become a forum to deal with serious design issues. Dreams for the future—many of which are rapidly becoming reality—include expanded outreach programs, a space in Washington for rotating exhibitions, a scholarly journal devoted to design issues, national conferences, increased utilization of the collections, and strengthened emphasis on education and research.

Cooper-Hewitt hopes to grow physically as well. First stages in the museum's physical evolution include plans to make better use of current facilities, for example, by presenting experimental programs in the museum's garden and by improving accessibility to all public areas. The museum envisions an addition on the east end of the current building that will include a public study center for three-dimensional objects, as well as space for a loading dock, a lecture hall, and storage. A major element of the master plan was achieved in the spring of 1989 with the purchase of the townhouse adjacent to the museum's facilities. The creation of a coherent public facility and an extended scope will enable Cooper-Hewitt to reach a broader and more diverse national audience.

Freer Gallery of Art

As the year opened, Dr. Milo C. Beach was named director of the Freer Gallery of Art and the Arthur M. Sackler Gallery. Opened in 1923 as the first art museum at the Smithsonian Institution, the Freer is dedicated to exhibition, research, and public education about its outstanding collections of art from Asia and works by late nineteenth-century American artists.

The gallery remained closed this year while a multimillion dollar renovation program continued that will link this landmark building with the neighboring Sackler Gallery. The Washington, D.C., firm of Jowett, Inc., was selected as the general contractor. The project, expected to continue into fiscal year 1993, will also enlarge space for conservation, exhibition, and collections storage and research.

The Freer collection has nearly doubled since the death in 1919 of museum benefactor Charles Lang Freer of Detroit. To house these collections safely and to make them more accessible for study by staff, visiting scholars, and interested members of the public, storage areas will be designed with ample space for examination. Additional space will be provided in a full subbasement, an area that had never been entirely excavated. This part of the project, as well as the link between the two galleries, is currently under construction.

During the early stages of the project, the ground level is being reconfigured, which will triple the facilities available for art conservation and technical research. The Technical Laboratory, whose staff serves the Freer and Sackler galleries, has assumed the increased responsibility for conservation for the Sackler Gallery's traveling exhibitions and for pieces borrowed from other institutions.

In the midst of the renovation project, the Freer awarded the ninth Charles Lang Freer Medal to Alexander Coburn Soper III. Professor Soper, of the Institute of Fine Arts, New York University, is an educator, writer, and editor widely recognized for his prolific contributions to the field of Asian art history.

Research

As the staff began planning exhibitions and publications for the reopening in fiscal year 1993, the James Smithson Society funded a portion of a project to clean and restore *Harmony in Blue and Gold: The Peacock Room* (1876–1877) James McNeill Whistler's only surviving interior decoration, which is permanently installed in the Freer. The restoration will be completed for the gallery's reopening.

Continuing her research on Whistler, Dr. Linda Merrill, assistant curator of American art, traveled to the Portland

Museum of Art in Maine under a Regents Publication Fellowship awarded last year for her book in progress, *A Pot of Paint: Whistler versus Ruskin*. Dr. Merrill has been working on a publication about the Peacock Room with the assistance of colleague Kim Nielsen, head photographer. Mr. Nielsen visited the Royal Photographic Society Archives in Bath, England, where he discovered the only known color images of the Peacock Room as it looked when it was installed in Mr. Freer's Detroit home. The images provide valuable information about the original state of the Peacock Room. They also document the ways that Mr. Freer preferred his collections to be displayed.

Acquisitions

Among the additions to the Freer collection were a spectacular seventeenth-century Japanese gold-lacquer covered box embellished with the Tokugawa family crest; a Ming dynasty (1368–1644) Chinese hanging scroll by Shen Chou (1427–1509) titled "Composing Poetry by a Spring Stream"; a collection of fifty-four Southeast Asian ceramics given by Mr. Dean Frasche; and an Edo period (1615–1868) Japanese dish and Ming dynasty Chinese ceramic bottle, both gifts from Mrs. Karol Kirberger Rodriguez.

Hirshhorn Museum and Sculpture Garden

The Hirshhorn Museum and Sculpture Garden, the Smithsonian Institution's museum of modern and contemporary art, maintained an active exhibition schedule and acquisition program this year. Films, concerts, symposia, tours, and other educational activities supported these programs. The museum's departments of conservation, registration, and photography, as well as the reference library, continued to offer technical support to staff and scholars.

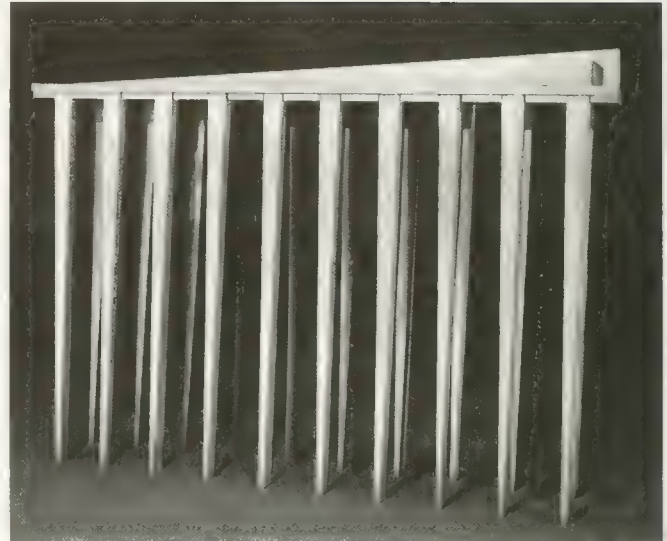
Exhibitions

This year's major exhibitions at the Hirshhorn brought to public attention noteworthy acquisitions and the works of renowned artists. "Recent Acquisitions, 1986-1989" presented a selection of primarily contemporary works acquired by the museum since its last acquisitions summary in 1986. Encompassing a wide range of styles and media, this acquisitions roundup of seventy-nine gifts and purchases included examples of early modernism and paintings, sculptures, and mixed-media works from the 1940s through the 1980s. The exhibition pieces were selected by Director James T. Demetrian.

"Robert Moskowitz," organized by Chief Curator for Exhibitions Dr. Ned Rifkin, opened in the summer of 1989 and then circulated to the La Jolla Museum of Contemporary Art in California and the Museum of Modern Art in New York. The exhibition was the first museum retrospective for this American artist and included collages, drawings, and paintings spanning his thirty-year career. Dr. Rifkin wrote the catalogue accompanying the exhibition.

Another exhibition, "Gerhard Richter Paintings," the German artist's first North American retrospective, consisted of forty-nine works, predominantly paintings, jointly organized by the Art Gallery of Ontario in Toronto and the Museum of Contemporary Art in Chicago. Its tour began at the Art Gallery of Ontario.

The Hirshhorn continued to offer audiences an intimate experience with contemporary art through its "Directions" and "Works" series. "Directions," which focuses on small-scale solo shows, highlighted the work of Ericka Beckman, Mel Chin, Walter Pichler, and Keith Sonnier. "Works," which features temporary installations created for the museum's building and grounds, remains the only ongoing program of its kind in a major American museum. This year, site-specific pieces were created by Daniel Buren, Houston Conwill, Buster Simpson, and Krzysztof Wodiczko. Both series and the accompanying publications were supported in



The Blind Leading the Blind (1947-1949), by American artist Louise Bourgeois (b. 1911), was acquired by the Hirshhorn Museum through the Regents Collections Acquisition Fund, with matching funds from Jerome L. Greene, Agnes Gund, Sydney and Frances Lewis, and Leonard C. Yaseen.

part by a grant from the Smithsonian Special Exhibition Fund. The Special Exhibition Fund also provided financial assistance for the publication of *Hirshhorn Works 1988*, a yearbook that presented analytical essays and photographic documentation of the exhibitions in the inaugural year of the series.

Smaller exhibitions showcased works from the permanent collection. Two were presented in conjunction with the anniversary of the 150th year of photography. These included "Ralston Crawford Photographs," organized by Curator of Prints and Drawings Frank Gettings, and "Thomas Eakins Photographs: A Selection from the Permanent Collection," organized by Associate Curator Phyllis Rosenzweig.

Loans

In addition to creating its own exhibitions, the museum lent eighty-two works of art to museums in the United States and overseas. This year, many of the major shows in the United States focused on the invention of the photographic process. The Walker Art Center's "The Vanishing Presence," a large traveling exhibition, included six photographs by Thomas Eakins selected from the Hirshhorn's vast collection. Photo-

graphs created by artist Lucas Samaras were lent to the exhibition, "Lucas Samaras, Objects and Subjects, 1969–1987," a retrospective organized by the Denver Art Museum with venues in several American cities. Retrospectives honoring painters George Ault, Oscar Bluemner, and Seymour Chwast were also held this past year, with the Hirshhorn lending several examples of each artist's work to each show. The museum's much-requested painting by the late Andy Warhol, *Marilyn Monroe's Lips*, was selected by the Museum of Modern Art for inclusion in its Warhol retrospective, a large comprehensive show that will be seen in the United States, Italy, England, West Germany, and France.

The highly acclaimed exhibition, "Perpetual Motif: The Art of Man Ray," organized by the National Museum of American Art, included two important loans from the Hirshhorn. Man Ray's small watercolor *Landscape* and the recently purchased larger work *Seguidilla* helped demonstrate this artist's varied talents.

Museums abroad focused on retrospectives as well. The Staatsgalerie Stuttgart mounted a Frank Stella exhibition to which the Hirshhorn sent *Arundel Castle*, one of the artist's black paintings. The Ministry of Culture, Madrid, Spain, presented a Philip Guston exhibition that was so well received in Barcelona and Madrid that it was brought to the United States by the St. Louis Art Museum. The Hirshhorn's painting *Oasis* traveled with the entire tour. In Italy, the National Gallery of Modern and Contemporary Art borrowed the imposing wood sculpture *Colloquy* by Pietro Consagra for an exhibition of Consagra's sculptures.

Education and Public Programs

The Education Department continued to broaden its efforts to bring the exhibitions and permanent collection alive for the Hirshhorn's 18,000 group-tour participants, who range from schoolchildren to senior citizens. Three workshops were provided for the National Art Education Association, as well as for high school art and social studies teachers from the Washington, D.C., metropolitan area. The "Currents" seminars for high school juniors continued to familiarize area students with the museum and the trends and ideas represented in new works of art. In addition, five undergraduate students gained much-desired museum experience in the Hirshhorn's summer internship program. Popular, regularly scheduled free films about artists, films by artist-filmmakers,

and matinees for young people were vital aspects of the museum's outreach to the public.

Monthly "Focus" talks began this year, each featuring an artist or curator participating in a Hirshhorn exhibition. In response to the debate over federal funding for the arts, the Hirshhorn cosponsored a panel with the Washington Project for the Arts titled "Art and Controversy: Historical Perspectives, Current Issues."

Acquisitions

The museum's permanent collection was enriched by twelve gifts and thirty-two purchases. Among the recent acquisitions were a major painting by Jasper Johns, *Untitled* (1987), and two sculptures by important American female artists, Louise Bourgeois's *The Blind Leading the Blind* (1948) and Eva Hesse's *Vertiginous Detour* (1966). The museum has also acquired a number of significant works by European artists, notably *The Soul of Morvan* (1954) by Jean Dubuffet, *Stairwell (Treppenhaus)* (1982) by Sigmar Polke, and *The Sorceress* (1961) by Jean Tinguely, in addition to works by Magdalena Jetelová, Anish Kapoor, Leon Kossoff, Walter Pichler, and Sean Scully. Several pieces by artists featured in "Different Drummers," an exhibition held in the spring of 1988, were also acquired: collages and mixed-media works by Wallace Berman and Robert Helm, as well as two collages by Jess (Collins), including a new work, *A Western Prospect of Egg and Dart* (1988). The museum has also continued acquiring art by Washington-area artists, evidenced by its purchase of drawings, paintings, and sculptures by Kendall Buster, Robin Rose, Alan Stone, and Andrea Way. Generous contributions received during this and previous periods from the Lannan Foundation, the Jacob and Charlotte Lehrman Foundation, the Holenia Trust, and the estates of Mary and Leigh Block, Joseph H. Hirshhorn, and Marion L. Ring were instrumental in providing funding for the Hirshhorn's acquisition program.

National Air and Space Museum

The National Air and Space Museum maintains the largest collection of historic aircraft and spacecraft in the world. It is also a vital center for research in the history, science, and technology of aviation and spaceflight. Based on its research, the museum will continue in its exhibitions to provide additional emphasis on the historical, social, and economic context that influenced the decision to build a particular kind of craft, the new kinds of technology required for its development, and the scientific knowledge gained from its use.

Research and Publications

The museum's four departments carry out research in a wide range of areas. The Department of Aeronautics is concerned with the history of aviation. The Department of Space History studies the history of rocketry and spaceflight. Scientists in the Center for Earth and Planetary Studies use data from satellites and planetary probes to study geomorphology and comparative planetology. Astronomers in the new Laboratory for Astrophysics design and test infrared astronomical instruments and conduct theoretical studies in astrophysics and planetary atmospheres.

In the Department of Aeronautics, work is progressing on the Smithsonian History of Aviation Series, under the leadership of Dr. Dominick A. Pisano and an international board of editors. Initial publications in the series will include *Visions of a Flying Machine: The Wright Brothers and the Process of Invention* by Peter Jakab and *The Evolution and Revolutions of Aerodynamics: An Historical and Engineering Perspective* by Dr. John Anderson.

Dr. Von Hardesty, Dorothy Cochrane, and Russell Lee produced *The Aviation Careers of Igor Sikorsky*, a catalogue based on the museum's exhibition. Robert van der Linden completed *Boeing 247: The First Modern Airliner*, and R. E. G. Davies finished *Lufthansa*, a pictorial history of the German airline. Peter Jakab is editing the first English-language book-length treatment on the life and work of the German glider pioneer Otto Lilienthal. Robert Mikesh completed *Japanese Aircraft: 1910-1941*, a comprehensive, in-depth study. Rick Leyes, in collaboration with William R. Fleming, is writing *The Evolution of the Small Gas Turbine Aircraft Engine Industry in North America*.

This year's visiting scholars added to the museum's research activities. Professor John Morrow, holder of the Charles A. Lindbergh Chair of Aerospace History, continued his research on the evolution of air power during World War

I. The museum had two International Fellows—Ron Dick, former British defense attache, and Soviet filmmaker Yuri Salnikov. Mr. Dick edited *The Jet Age: Fifty Years of Jet Aviation*, to be published by the Smithsonian Institution Press, and Mr. Salnikov worked on a film about Soviet-American cooperation in aviation in the 1930s.

The museum hosted one Guggenheim fellow and four Smithsonian Institution fellows. Guggenheim Fellow Richard Muller did thesis research on the Luftwaffe and the Soviet Union during World War II. Smithsonian Institution Fellow Jacob Vander Meulen finished his thesis on the American aircraft industry; Jill Snider conducted research on blacks and aviation in Chicago between the wars; Takashito Hashimoto studied German and British aerodynamics in the 1920s; and Tami Davis Biddle carried out research on the evolution of air power doctrine.

During the year, the Department of Space Science and Exploration changed its name to the Department of Space History and acquired a new chairman: Dr. Gregg Herken, a historian of nuclear diplomacy and author of *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-50*, and *Counsels of War*. He recently completed the manuscript of *Cardinal Choices: The President's Science Advisers from Roosevelt to Reagan*. Dr. David DeVorkin finished *Race to the Stratosphere: Manned Scientific Ballooning in America*, which was published by Springer Verlag. He is now researching *Science with a Vengeance: The Origins of Space Science in America*. Dr. Paul Ceruzzi is contributing to a book titled *Computing before Computers*. Martin Collins edited (with Sylvia Fries) *A Spacefaring Nation: Perspectives in Space History*. Dr. Allan Needell is writing a book on Merle Tuve and Lloyd Berkner, which will explore the evolution of large-scale American science over the last fifty years. Dr. Robert Smith published a definitive history of the Space Telescope and is working on a biography of the American astronomer V. M. Slipher. Dr. Joseph Tatarewicz completed *Space Technology and Planetary Astronomy*. Frank Winter finished a book on the nineteenth-century rockets of Congreve and Hale and is researching another book on the impact of Robert Goddard on modern rocket and spaceflight theory.

In 1989, the museum's Glennan-Webb-Seamans Project conducted oral history interviews with key administrators and managers from the National Aeronautics and Space Administration (NASA) and the aerospace industry. It also participated in the Smithsonian Videohistory Program by conducting interview sessions on the origins of aerial recon-

naissance studies at the Rand Corporation. Concurrently, the Smithsonian Videohistory Program supported the museum's research on the history of X-ray astronomy and aeronomy at the Naval Research Laboratory.

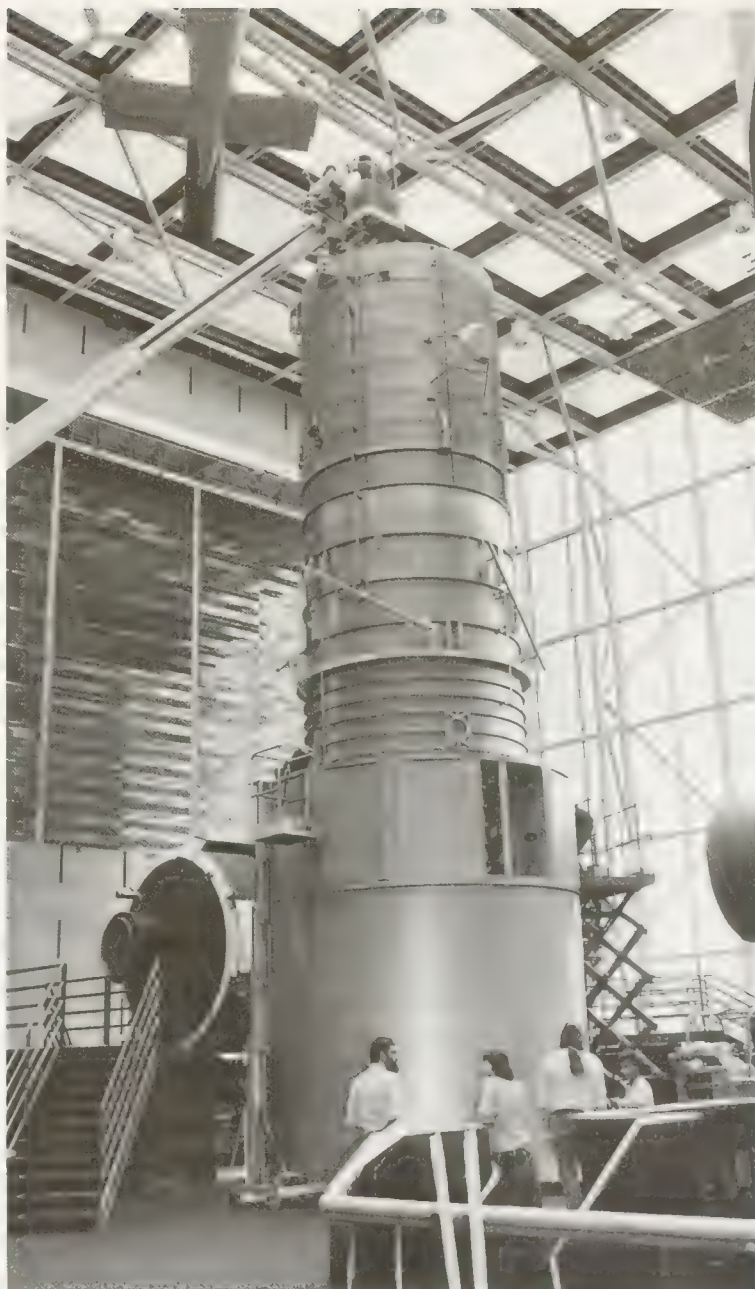
Current research in the Center for Earth and Planetary Studies (CEPS) deals with desertification and other arid zone processes in Africa, studies of Martian surface morphology, and structural deformation on the terrestrial planets. The center is also involved in detailed geological mapping of parts of Mars, which will be used in the selection of potential landing sites for future missions to Mars.

During the past year, research on desertification focused on Egypt, Mali, and Botswana. Analysis of SPOT satellite images of the massive Abu Muharik dune system in the Western Desert of Egypt led to the discovery of differential mobility of sands according to spectral type. Dr. Ted Maxwell, the center's chairman, led a team of American and Egyptian scientists during eight days of field studies in the region. Dr. Patricia Jacobberger has found a correlation between vegetation abundance and geomorphology in arid and semiarid regions.

Working with colleagues at Arizona State University, Robert Craddock has discovered a large, ancient impact basin in the Memnonia region on Mars, the formation of which may have caused widespread faulting, uplift of concentric crustal blocks, and local volcanism. Dr. James Zimbleman has proposed a wind-related origin for material filling concentric zones of craters on Mars. Dr. Randall Forsythe, a senior Smithsonian Fellow, has discovered features that may be evidence of horizontal faulting on Mars.

Work directed by Priscilla Strain has begun on the *Smithsonian Satellite Atlas of the World*, a major reference publication planned for the 1992 Columbus Quincentenary. The atlas will provide the first complete coverage of the Earth's land surface as seen from orbit by such systems as Landsat, SPOT, and the Shuttle Imaging Radar, together with a user's guide describing the various spacecraft sensors, missions, and availability of data.

The Laboratory for Astrophysics, a new research department, opened in October 1988. A laboratory facility was built in the museum parking level and has been equipped with carbon dioxide and far-infrared lasers, cryogenic detectors, and basic electronics needed for research on the development and testing of infrared spectroscopic instruments for ground- and space-based astronomical observations. The laboratory's research programs also include theoretical and observational work on the meteorology of



In late March, exhibits production specialists at the National Air and Space Museum installed the structural and dynamic test vehicle used in the development of the Hubble Space Telescope, the largest orbiting observatory ever built. The telescope is expected to provide images of deep space with ten times the clarity and fifty times the light sensitivity of the best ground-based telescopes. (Photograph by Mark Avino)

Venus and Mars, star formation and associated phenomena in interstellar molecular clouds, and the energetics of infrared active galaxies.

Working with NASA's Goddard Spaceflight Center, Dr. Jeffrey Goldstein has developed laser systems to provide absolute frequency stability for infrared spectrometers. These systems have been used with ground-based telescopes at Kitt Peak and Mauna Kea to measure local wind velocities on Mars and above the clouds of Venus to an accuracy of 1 meter per second.

Dr. Matthew Greenhouse has developed equipment to measure infrared line emission and is using it to study material ejected in shells from novae, or active stars. He has also made near infrared and radio molecular observations of galaxies in an effort to explore the role of galactic spiral structure in star formation.

Dr. Martin Harwit, the museum's director, is developing scientific goals for the Infrared Space Observatory (ISO), which will be launched by the European Space Agency in 1993. He is also a coinvestigator on the Submillimeter Wave Astronomy Satellite, a Smithsonian Astrophysical Observatory collaborative program to be launched in 1993. In a series of papers on the origin of intense infrared emission observed from "active" galaxies, Dr. Harwit is developing an explanation in terms of collisional interactions between galaxies.

Dr. Howard Smith, chairman of the laboratory and a coinvestigator on ISO, developed a method using photolithography and microelectronics to fabricate high-precision metal mesh reflectors for use by the infrared spectrometers on the spacecraft. In collaboration with astronomers at the Naval Research Laboratory, Dr. Smith has been observing strong outflowing winds around certain young stars, one of which appears to be surrounded by a preplanetary disk of material.

Exhibitions

A major gallery, "Beyond the Limits: Flight Enters the Computer Age," opened in May. Curated by Dr. Paul Ceruzzi and designed by William Jacobs, the exhibition is devoted to the computer's impact on air and space technology. Aeronautics has depended on computation from the beginning of powered flight, but the recent "computer revolution" has changed the nature of aerospace technology as profoundly as did the introduction of jet propulsion some



Israeli Prime Minister Yitzhak Shamir (center) toured the National Air and Space Museum's Space Hall on April 5, accompanied by Director Martin Harwit (left) and President George Bush. (Photograph by Mark Avino)

forty years ago. The exhibition features a full-scale model of the computer-stabilized X-29 aircraft, a CRAY-1 (among the first supercomputers), a pair of robot arms that fold and launch paper airplanes, the HiMAT remote-controlled research airplane, and a flight spare of the *Mariner 10* space probe to Venus and Mercury, the first spacecraft to use the gravity of one planet to swing itself toward encounter with another.

Twelve computer interactive exhibits use a variety of computer hardware. Two of them, "Multi-Stage Rocket Design" and "Airplane Design: The Basic Ingredients," were developed in a software competition among college and university students throughout the country. In the "Velocity 3-D" program, the user touches a video screen to create an arbitrary shape, which the computer then transforms into the image of a solid model that can be animated as the visitor wishes. Another exhibit, "The Workstation," uses a sophisticated program to show how a designer builds up an airplane from wire-frame to final realistic image.

In Space Hall, the museum placed on exhibit the Structural Dynamic Test Vehicle used in developing the Hubble Space Telescope, the largest astronomical space telescope ever built. In June 1989, the Art Gallery opened an exhibition, "Aeropittura Futurista: Images of Flight in Italian Art, 1913 to 1942," which examines the first artistic movement to embrace technology and glorify the airplane as a symbol of

the modern age. The museum also hosted an exhibition, "Blockade and Airlift: The Berlin Crisis of 1948-1949," produced by the city of Berlin to commemorate the fortieth anniversary of the Berlin Airlift.

The museum's Film Production Unit created ten films and video presentations, a preschool animated cartoon, and three interactive displays. "X-29 Experiment in the Sky" employed an advanced air-to-air tracking system installed in the belly of a Learjet to film the X-29 aircraft as it performed research maneuvers over the California desert. "Simulation Takes Flight" integrated state-of-the-art supercomputer graphics in a film creating the illusion of flight in an F-14, a Boeing 767, and a Space Shuttle.

Collections

In 1989, the staff at the museum's Paul E. Garber Facility completed restoration of three significant space artifacts: the *Mercury 14* capsule, the Structural Dynamic Test Vehicle for the Hubble Space Telescope, and the *ATS-6* satellite. In support of the forthcoming World War I gallery, the team preserved a British Sopwith Snipe fighter and began major restoration of a French Voisin 8 bomber. Also under restoration is a World War II Aichi Seiran, a Japanese submarine-borne seaplane designed for the sole purpose of bombing the Panama Canal. The staff completed the restoration of the German Arado 234, the first jet bomber. In addition, the team working on the *Enola Gay* completed restoration of the tail gunner's section of the rear fuselage.

The museum's archives acquired 120 collections this year. Especially significant were materials from Sir Hiram Maxim, archives from the Fairchild Corporation, the HiMAT aircraft collection, and a valuable collection of early ballooning material. Some thirty films were also added to the collection. The museum's sixth archival videodisc was released in time for the twentieth anniversary of the *Apollo 11* lunar landing; it contains some 80,000 images of solar system objects obtained from unmanned space probes and the Apollo missions.

Notable artifacts acquired during the year include a C-130 cargo carrier typical of those used in Vietnam and a McDonnell-Douglas F4S Phantom fighter, also used in Vietnam. The museum accepted from Air France the promise of a Concorde airplane; it will become part of the collection after its retirement from service.

Public Events and Educational Programs

On July 20, 1989, the three original *Apollo 11* astronauts, together with President George Bush and other dignitaries, took part in a ceremony on the museum's steps to commemorate the twentieth anniversary of the first manned lunar landing. During the day, the museum presented six free screenings of the feature-length documentary *For All Mankind*, a poetic retrospective based on the Apollo film archives. That evening, the public was invited to view a "real time" closed-circuit television replay of the original lunar landing coverage. The anniversary also saw the opening of an art exhibition, "Eyewitness to Apollo 11," tracing the history of the Apollo program through the eyes of artists ranging from Robert Rauschenberg to Norman Rockwell.

A new planetarium show, "Calling All Stars," opened in the museum's Albert Einstein Planetarium. Using dazzling multimedia effects, the program takes viewers on a voyage to other worlds to explore current scientific thinking on the question of extraterrestrial life and our prospects for radio communication with other civilizations in space.

During the year, the museum offered a wide range of public programs designed to both educate and entertain. Lecture series include nine General Electric Aviation lectures; twelve Monthly Sky lectures; a lecture series titled "Other Suns, Other Worlds"; a program sponsored jointly with the Smithsonian Astrophysical Observatory titled "The Search for Extraterrestrial Intelligence"; the annual Wernher Von Braun and Charles Lindbergh lectures (by John McLucas on "Mission to Planet Earth" and George McGovern titled "Remembrances of a B-24 Pilot," respectively); plus special lectures by Frank Borman ("Countdown"), Prince Sultan bin Salman ("A Royal View from Space"), and Edward Stone ("*Voyager 2* Encounters Neptune"). In addition, the museum held symposia the following symposia: "The Wright Brothers: 85 Years after Kitty Hawk" and "Exploring the Habitable Universe: The Next 500 Years of Space Exploration." It also cosponsored a three-day seminar, "Mutual Concerns of Air and Space Museums." Three aviation films and eight space fiction films were also presented.

The Education Department held workshops for teachers on topics ranging from weather to manned spaceflight and prepared curriculum packages for "Beyond the Limits: Flight Enters the Computer Age," "Fragile Earth," and "Exploring Space." The Department of Volunteer Services provided tours for some fourteen thousand students, an increase of 43 percent over last year.

National Museum of African Art

The Outreach Program sponsored a lecture by Captain David Harris on his experiences as one of the first African American pilots hired by a commercial airline. In May, some 700 elementary school students from the District of Columbia took part in a special program featuring astronaut Guion Bluford, which proved to be the museum's most successful effort to date to reach minority schoolchildren.

Air & Space/Smithsonian

Public enthusiasm for the bimonthly magazine *Air & Space/Smithsonian* did not abate in 1989 as circulation continued to climb steadily.

This year marked the twentieth anniversary of the first manned lunar landing and *Air & Space/Smithsonian* celebrated this event by producing its first single-topic issue. It was a sellout.

In only a few years, *Air & Space/Smithsonian* has become one of the biggest magazines in its field. In a recent poll, the public indicated with a 99 percent positive response that the magazine is what they expect from the popular National Air and Space Museum.

The National Museum of African Art's second year in its permanent location on the National Mall brought a wide range of exhibitions and several important acquisitions. In particular, the acquisition of two important collections of extraordinary utilitarian objects primarily from East and South Africa was a source of pride for the museum, especially since it has only been in the last ten years that these works have been recognized for their aesthetic value.

This year, the museum also expanded its public outreach efforts, adding a cornucopia of public programs to complement the museum's ambitious exhibition schedule. Special efforts were made to reach high school students by offering courses in the arts and cultures of Africa. As the only museum in the United States dedicated to the collection, exhibition, and study of the art of Africa south of the Sahara, the National Museum of African Art endeavors to share the works of African artists with a far-reaching audience.

Exhibitions

In addition to the exhibition of "Royal Benin Art" and the pieces shown as part of the permanent collection, there were five temporary exhibitions. Each focused on a particular art form or medium, demonstrating the extraordinary variety of creative traditions found throughout Africa.

"Echoes of the Kalabari: Sculpture by Sokari Douglas Camp" was the museum's first show of contemporary sculpture. Camp, who was born in Nigeria and works in London, spent three weeks at the museum overseeing the installation of the exhibition. The thirty-year-old artist's life-sized figurative pieces were shown in conjunction with a second exhibition, "Kalabari Ancestral Screens: Levels of Meaning," which honored ancestral screens. To accompany these exhibitions, British Museum anthropologist Nigel Barley wrote a catalogue titled *Foreheads of the Dead: An Anthropological View of Kalabari Ancestral Screens*, which was published by Smithsonian Institution Press. The museum staff also produced two illustrated brochures to accompany the Kalabari exhibitions.

In April, two major shows debuted at the museum. "Gold of Africa: Jewelry and Ornaments from Ghana, Côte d'Ivoire, Mali, and Senegal," organized by the Barbier-Mueller Museum in Geneva and circulated by the American Federation of Arts, explored the art of the West African goldsmith. "Sounding Forms: African Musical Instruments," organized and circulated by the American Federation of Arts, was the

first exhibition to examine the sculptural qualities of traditional instruments. Washington advertising and a preview for both exhibitions was supported by a generous grant from the Pepsi-Cola Company.

A small but impressive exhibition titled "The Essential Gourd" featured seventy-five decorated gourds. The traveling show was organized and circulated by the Museum of Cultural History at the University of California at Los Angeles.

Acquisitions

The museum acquired 225 objects this year through purchases and gifts, a marked increase from last year's total of 22. One of the most exciting purchases, made possible through the Collections Acquisition Program of the Smithsonian Board of Regents, was a collection of 85 ceramic vessels from Central Africa. Made mostly by women, these durable, low-fire vessels were used as bottles or as cooking, storage, or ritual vessels. The collection is particularly valuable because the style traditions that gave rise to these pieces have all but disappeared.

Other significant gifts include an important Yoruba palace door carved by the master sculptor Olowe of Ise, Nigeria, and a rare Kongo cast copper-alloy bracelet from Zaire. Artist Olowe of Ise was also the subject of archival research conducted at the museum. Scheduled to be completed in 1991, the finished product will be the first monograph devoted to a traditional African artist.

The Eliot Elisofon Archives, the major research component of the museum, expanded its holdings to more than 140 collections, including approximately 200,000 color slides, 78,000 black-and-white photographs, and more than 140,000 feet of motion picture film and videotape.

Outreach Efforts

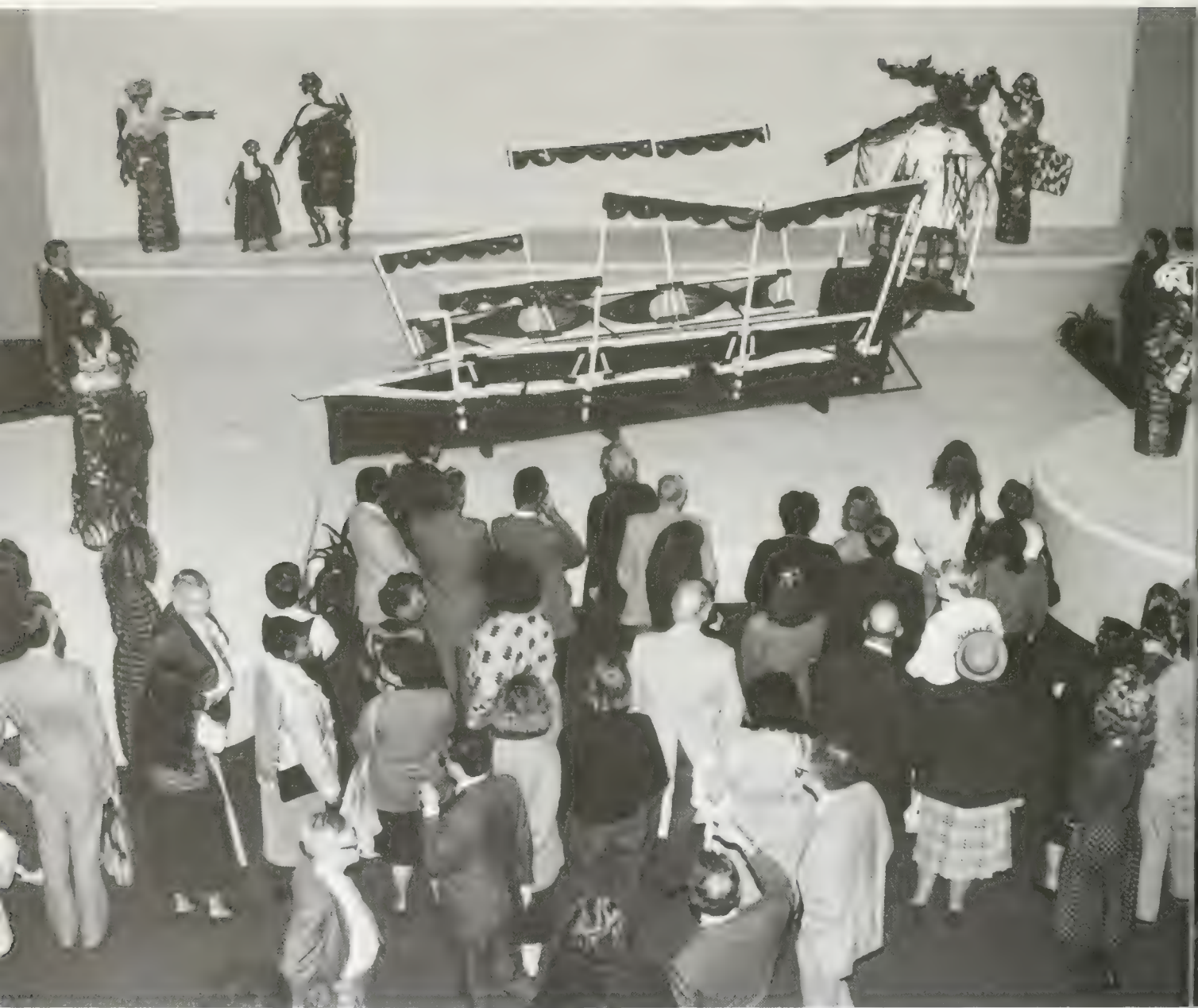
As part of its mandate to reach large segments of the population, the museum's Education Department offered an impressive number of public programs for a wide range of audiences. The year's offerings included free tours, art classes, music workshops, and performances. Nearly forty-five thousand people took advantage of these public programs.

The film series became a regular part of the museum's educational offerings this year. Four unique series came to the public, including the U.S. premiere of *Things Fall Apart*,



This sculpture, *Woman and Child from Audience Group*, was featured in the National Museum of African Art exhibition, "Echoes of the Kalabari: Sculpture by Sokari Douglas Camp."

which was funded through a grant from the Women's Committee of the Smithsonian Associates. Based on the highly acclaimed novel by Nigerian author Chinua Achebe, the series was produced by the Nigerian Television Authority. Lectures featuring prominent black scholars were offered in conjunction with the film. Another series, "African Reverberations: Films about Africa and the New World," presented seven documentaries and African-produced features exploring the interaction of African and Western cultures. The films were introduced and discussed by film producers, directors, and scholars.



Visitors to the National Museum of African Art view the impressionistic Kalabari festival created by Nigerian artist Sokari Douglas Camp.
(Photograph by Jeffrey Ploskonka)

Among this year's special projects were programs to encourage people with special needs to visit the museum. For visually impaired people, the museum published a large-print permanent collection brochure. Tours for hearing-impaired visitors were also offered.

In an effort to introduce the arts and cultures of Africa to local students, the museum launched an ambitious outreach effort. Funded with a grant from the Women's Committee of the Smithsonian Associates, the museum initiated a pilot program titled "African Art for High School Students." The ten-week program held on Saturdays brought dynamic public high school students from throughout the city to the museum for instruction in the arts and cultures of Africa, as well as for an overview of different museum professions. The climax of the workshops was the opportunity to meet with a Nigerian sculptor and a Ghanaian weaver.

For female high school students, the Education Department developed a special month-long program in conjunction with the Potomac Chapter of the Links, Inc., an African American women's organization. And for younger children, the museum hosted students from two local elementary schools for intensive sessions as part of the D.C. Public School's Chapter I Program museum project.

Beyond the boundaries of the National Mall, the museum served thousands of individuals through outreach programs at senior care centers, hospitals, and other locations. For the elderly, ill, and handicapped unable to visit the museum, education staff provided programs on African art and culture.

For scholars in African art worldwide, the museum proved to be a focal point of attention as it hosted the Eighth Triennial Symposium on African Art, the most important worldwide meeting of African art specialists. The conference was organized by the Arts Council of the African Studies Association (ACASA) and sponsored by ACASA, Shell Companies Foundation, Inc.; the National Museum of African Art; and the National Museum of Natural History. Dr. Philip Ravenhill, the museum's chief curator, and Dr. Mary Jo Arnoldi, an associate curator from the National Museum of Natural History, chaired the conference. Three hundred scholars and specialists from the United States, Europe, and Africa attended this important event.

Conservation

The museum's conservation analytical laboratory welcomed Dr. Janet Schrenk as a postdoctoral fellow. Schrenk's year of research, which began in April, concentrated on "The Technical Analysis of Benin 'Bronzes' in the National Museum of African Art." The works are part of the museum's permanent exhibition, "Royal Benin Art."

National Museum of American Art

The National Museum of American Art (NMAA) is committed to the acquisition, preservation, study, and exhibition of American painting, sculpture, graphic arts, photography, and folk art. As the largest museum of American art in the world, the NMAA houses almost 35,000 objects. The Renwick Gallery serves as a curatorial department of the NMAA and collects and exhibits American crafts and decorative arts. The Barney Studio House is also maintained by NMAA as a period home open for tours by appointment.

Following the resignation in 1988 of Dr. Charles C. Eldredge as director, Dr. Elizabeth Broun served as acting director before being named director on August 30, 1989. Dr. Broun, who had been assistant director and chief curator of NMAA since 1983, is the seventh permanent director of the museum since it became a separate administrative unit of the Smithsonian in 1920.

Exhibitions

This year, NMAA's four major exhibitions provided an overview of trends in American art history in all media from the turn of the century to the present day. One of the best-received exhibits of the year was "Perpetual Motif: The Art of Man Ray." The retrospective exhibition included paintings, works on paper, photographs, films, and objects by one of the founding fathers of dada and surrealism. A grant from the Federal Council on the Arts and Humanities enabled the museum to borrow from European, as well as from American sources, making it possible for the first time to assemble an exhibition that fully explored the continuity of vision that distinguished Man Ray's long and productive career.

The artist's widow, Juliet Man Ray, participated in programs and special events for the exhibition's opening. Staff curator Merry Foresta, who organized the exhibition, and seven other scholars wrote essays for a book on the artist and his long career, which was published by Abbeville Press. The exhibition was supplemented by an international symposium, "Dada and Surrealism in American Art," and a series of Man Ray films, lectures, and demonstrations that presented an overview of this multifaceted artist, who was recognized as a painter, a craftsman, a photographer, a filmmaker, and a participant in avant-garde circles on two continents. After closing in Washington, "Perpetual Motif" traveled to museums in Los Angeles and Houston; it will close at the Philadelphia Museum of Art in 1990.

An exhibition titled "The Art of Paulanship" focused on a completely different facet of American art of the same

period. Manship's sculptures and drawings look back to the serene, timeless art of Egyptian carvings, Greek vases, and decorative elements of ancient civilizations. The graceful, stylized forms attest to the artist's position as the most celebrated American sculptor of the first half of the twentieth century and foremost exponent of the art deco style—a position he held until postwar modernist abstract art eclipsed his fame. To illuminate the myths used so often in Manship's work, a special slotted box shaped like a Greek temple was constructed to hold paddles describing selected stories, which could be removed and read by visitors as they walked through the show. Manship's life and works were examined in depth in a book published for the exhibition by the Smithsonian Institution Press and written by staff curator Harry Rand, who selected works for the exhibition entirely from the museum's holdings.

The exhibition was further supplemented by a series of six public lectures, sponsored in part by a grant from the Smithsonian Society, and by two workshops for high school students. "The Art of Paul Manship" will travel to six museums across the United States, closing at the Metropolitan Museum of Art in New York in 1991.

To celebrate the 150th anniversary of photography and to reinforce its commitment to exploring the new direction of contemporary photography as artistic expression, the museum organized "The Photography of Invention: American Pictures of the 1980s," which included recent works by ninety artists; six of the works were especially created for the show. The exhibit emphasized the new versatility and inventiveness of the medium. Ranging in size from 5 inches to 12 feet high, the large, colorful, and arresting photographs often invoked themes of social criticism and political commentary. Many used new computer technology or borrowed the visual vocabulary of advertising. Supported by a grant from the Smithsonian's Special Exhibition Fund, the show was complemented by a scholarly catalogue, published by MIT Press, which included an introduction by staff curator Merry Foresta and an essay by guest curator Joshua P. Smith. A lecture series, artist demonstrations, and student/teacher workshops were also organized to explain the new concepts in photographic art. After closing at NMAA, the exhibition traveled to museums in Chicago and Minneapolis.

Equally avant-garde for their time were the works that form the "Patricia and Phillip Frost Collection: American Abstraction, 1930-1945." This exhibition premiered eighty-five works ranging from paintings and sculpture to collages and films made by members of the American Abstract

Artists, an organization formed to deepen the understanding of the utopian possibilities for abstract art during the years of the Great Depression. The exhibition and its catalogue, published by the Smithsonian Institution Press, provided a new analysis and insight into a group whose accomplishments have so far received little public or scholarly attention. A documentary interactive video specially produced for the exhibition offered visitors the opportunity to watch five of these artists discuss the philosophical and aesthetic underpinnings of their art, as well as the social and political climate in which they worked.

As part of its commitment to promote excellence in the visual arts by young Americans, NMAA joined with the White House Commission and the National Foundation for Advancement in the Arts to sponsor an exhibition of works by the 1988 Presidential Scholars in the Visual Arts. Twenty-four paintings and assemblages by four high school students were on view in the Finley Conference Room during June 18–25. The exhibition's opening reception was attended by 141 Presidential Scholars, their teachers, trustees from the National Foundation for Advancement in the Arts, and members of the Commission of Presidential Scholars.

Three temporary graphic arts installations were also mounted this year: "New Acquisitions in Graphic Arts"; "On Watch: Benton and the U.S. Navy," which consisted of illustrations by Thomas Hart Benton while he was in the Navy during World War II; and "Modern Abstraction in American Prints," which complemented the works in the Frost Collection.

Acquisitions

Several important paintings that marked significant developments in each artist's career were added to NMAA's rich holdings this year. *Market Day outside the Walls of Tangier*, an 1873 oil by Louis Comfort Tiffany, summarizes the artist's intrigue with exotic oriental themes. Executed in New York and exhibited there to critical praise, the painting is a gift of the American Art Forum, NMAA's patron support organization. It is a key to the current reevaluation of Tiffany as a significant American painter. Alice Neel's 1935 oil portrait of *Max White* represents the best of her early work and shows her fascination with the ancient Olmec sculpture of Mexico. Theodore Roszak's 1932 work *Recording Sound* was created following the artist's introduction to the Bauhaus and surrealism. Composed three-dimensionally of plaster and oil on panel, the work illustrates Roszak's fascination

with materials and the new technology of the gramophone.

Significant sculptures were also acquired by the museum during the year. *Stillscape I and II* (1984) by Brian Hunt are monumental abstract bronzes inspired by natural forms that complement each other and enhance the ambience of the museum's courtyard. The museum purchased one of the sculptures and received the other as a gift from NMAA Commissioner Nan Tucker McEvoy.

NMAA continued to build its photography and folk art collections as well. Final arrangements were completed for the gift of sixty prints from the "master set" of photographs by Irving Penn, which will be exhibited by NMAA in 1990. Herbert W. Hemphill, Jr., added to the folk art collection with a gift of 17 objects, which will join the 378 objects that Mr. Hemphill donated in 1986. NMAA received from the Federal Bureau of Investigation a handsome work on paper by contemporary artist Tom Wesselmann, which had been confiscated during a drug raid. Of the total acquisitions for the year, 78 percent were received by gift or transfer.

Renwick Gallery

Exhibitions at the Renwick Gallery concentrated on diverse themes in American crafts and decorative arts. The gallery's main effort was "The Boat Show: Fantastic Vessels, Fictional Voyages," an exhibition of eighteen three-dimensional objects that breached the conventional boundaries separating crafts from fine art. From the burial barges of the Egyptian pharaohs to the spaceships of today's science-fiction films, the boat has played a prominent role in mythology, religion, literature, and art. Both deliberately and unconsciously, the artists in this exhibition drew upon the legacy of maritime imagery, expanding its meanings in new and often compelling ways. The works, produced in wood, glass, clay, fiber, and hay, mark the survival of timeless symbols in the modern world and challenge viewers to embark on their own imaginative voyages of discovery. An innovative public program invited visitors into the gallery spaces to witness the artists' on-site construction of five of the largest boats. The enthusiastic response the exhibition received in the press was incentive for museums in Fort Lauderdale, Florida, and in Portland, Maine, to host the show as well.

Other prominent exhibitions at the Renwick this year included "Stephen De Staebler: The Figure," which presented this California artist's powerful ceramic and bronze figurative sculptures; "American Art Pottery, 1880–1930," from the Cooper-Hewitt Museum, which featured seventy-



Juliet Man Ray, right, attended the press conference preceding the opening of the National Museum of American Art's exhibition, "Perpetual Motif: The Art of Man Ray," which included 268 paintings, works on paper, photographs, films, and objects by her late husband. Director Elizabeth Broun is at left, and at center is Merry A. Foresta, curator and organizer of the exhibition.

five examples in the aesthetic and historical development of this movement; and "Bound to Vary: Billy Budd, Sailor," which included bindings by seventeen of the finest bookbinders in North America for limited editions of Herman Melville's literary work.

In an ongoing effort to encourage scholarly activities at the Renwick, two new recipients were appointed for the second annual James Renwick Fellowships in American Crafts. These in-residence fellows conducted research on aspects of contemporary American ceramics and their historical antecedents.

With the assistance of the Smithsonian's Collections Acquisition Program, the James Renwick Alliance (the Renwick's support group), and other sources, the gallery was able to expand its burgeoning collection of contemporary crafts. Major works by Wendell Castle, Dale Chihuly, Toshiko Takaezu, Wayne Higby, Ed Moulthrop, John Prip, Richard De Vore, Beatrice Wood, and Frans Wildenhain were purchased, and a significant work by Margret Craver was donated.

Research Resources and Activities

During the year, twenty-five pre- and postdoctoral fellows and scholars-in-residence conducted research on a wide range of topics in American art and American studies. Returning for the second half of his appointment as a Smithsonian Regents Fellow was Dr. Albert Boime, professor

of art history at the University of California, Los Angeles. NMAA's intern program had thirty-two participants during the year, representing fifteen states and two foreign countries; six of the interns were minorities, and twenty-seven were women.

NMAA's widely acclaimed scholarly journal, *Smithsonian Studies in American Art*, increased the number of annual issues this year to a full complement of four. Published by Oxford University Press, the journal includes articles covering a wide spectrum of topics—from Edward Hopper to folk art and comic strips. Research Curator Lois M. Fink completed work on *American Art in the Nineteenth-Century Paris Salons*; assisted by a generous award from the Getty Grant Program, the book is scheduled for publication next year by the Cambridge University Press.

The museum continued to solicit information for its newest research resource, the Inventory of American Sculpture. Last year, NMAA mailed fourteen thousand questionnaires to museums and other institutions about their sculpture holdings; this year, NMAA sent ten thousand queries to private collectors throughout the country. The steady influx of replies has resulted in a total of 32,000 works recorded in the inventory's data base. Late in the year, the museum received the good news of awards of \$850,000 from the Getty Grant Program and \$270,000 from the Pew Charitable Trusts for the support of the sculpture inventory and for a national survey of outdoor sculpture in cooperation with the National Institute of the Conservation of Cultural Property. The Inventory of American Paintings, which now holds

National Museum of American History

computer records of more than 250,000 works, also benefited from the questionnaires, because many private collectors also reported paintings. Use of the data base increased 40 percent during the year.

Several special projects were advanced in the museum's Photographic Archives. Support from the Smithsonian's Research Resources Program allowed the museum to begin preservation and printing of the seven thousand negatives in the Walter Rosenblum Collection. The images in the collection represent American and some European art and artists photographed by Rosenblum for prestigious galleries and other clients in the New York City area between 1945 and 1962. Staff also sorted and developed a brief finder's guide to the five thousand photographs and photomechanical reproductions of the period 1860-1940 from a collection of copyright deposit materials transferred to NMAA from the Library of Congress.

Collections Management

A sophisticated computer program designed to manage the numerous requests, records, and reports that are part of the lending process has greatly improved collections management. This year, NMAA lent 150 works from its collection to institutions in eighteen states and seven foreign countries. A total of thirty-two works on paper were approved for deaccessioning from NMAA's collection, of which twenty-two were transferred to other Smithsonian museums; the remainder will be sold at public auction. To meet the desperate need for additional art storage space, the museum is planning to construct an area in unused portions of the museum's attic.

Design of a multfile data base for the museum's collection was completed this year. In addition to providing on-line access to the collection, the two-file structure of the data base will permit development of a separate artist biographical file. Toward that end, a total of 2,700 artist names have been researched under NMAA's Artist Authority Project.

The National Museum of American History (NMAH) investigates, collects, preserves, interprets, exhibits, and honors the heritage of the American people. The museum's first responsibility is to protect and present tangible pieces of history— furniture, tools, clothing, inventions, and countless other artifacts of the past. But it also seeks to reconstruct more elusive pieces of the past through music, drama, and the oral heritage of Americans. Drawing on original research, the exhibitions, publications, and public programs of the museum contribute to both the scholarly understanding of American history and the broad dissemination of knowledge.

This year, the museum pushed ahead with its comprehensive renovation of the building while keeping to a heavy schedule of exhibitions, scholarly programs, public performances, and other projects. Also of note this year, Bernice Johnson Reagon, founder and former director of the museum's Program in African American Culture and now a curator in the Division of Community Life, received a special honor—a \$275,000 MacArthur Foundation Fellowship.

Exhibitions

The exhibition program is the principal way in which the museum portrays the social, technological, and cultural heritage of the nation to its roughly six million annual visitors. Exhibitions draw on the talents of the entire museum, from curatorial divisions to conservation to building management. Twenty-three exhibitions were installed last year, including simple one-case displays; traveling shows; and "Ceremonial Court," a new permanent exhibition. "The Fabric of a Friendship" and "Delaware 350: Commemorating New Sweden, 1638-1988" combined two traveling exhibitions marking the 350th anniversary of the first Swedish and Finnish settlements in the United States. "The Way to Independence: Memories of a Hidatsa Indian Family, 1840-1920" documented the experiences of Buffalo Bird Woman, her brother Wolf Chief, and her son Edward Goodbird, and chronicled the upheavals in their lives over eighty years. The exhibition was organized by the Minnesota Historical Society and coordinated by the museum's American Indian Program.

At the request of Japan's Association for Japan-U.S. Community Exchanges, the museum produced "American Inventions," an exhibition of 113 patent models and seventeen other objects that toured seven cities in Japan. Plans are under way to bring the exhibition to the United States on the bicentennial of the patent system in 1990. The exhibition

was sponsored by Nippon Telegraph and Telephone, Pioneer, Nomura Securities, Kokusai Denshin Denwa, and the Tokyo, Kansai, Chubu, Tohoku, Chugoku, and Shikoku electric and power companies.

Several important temporary exhibitions opened, including "The Perpetual Campaign: How Presidents Try to Persuade the People (and Vice Versa)" and "American Television from the Fair to the Family, 1939-89," which explored television from its introduction at the New York World's Fair in 1939 to its role as a dominant force in our culture. "Duke Ellington, American Musician" commemorated Ellington's career and musical legacy. "Men and Women: A History of Costume, Gender, and Power" examined changing—and unchanging—standards of appearance and behavior for men and women. "Rome at War as Seen through Coins" was created around a loan exhibition from the Staatliche Münzsammlung in Munich, Germany, and enlarged at NMAH to display more than four hundred coins depicting ancient Rome and its conquest of the Mediterranean world.

The entrance to the "Ceremonial Court" recreates the front corridor of the White House as it looked during Theodore Roosevelt's administration. The exhibition includes a number of original elements from the White House, and its design motifs are based on original molds and castings. Galleries within hold first ladies' gowns, presidential artifacts, jewelry, pottery, and other objects from collections throughout the museum.

Research, Scholarship, and Collections

The research of curators and other staff members lays the groundwork for the museum's exhibitions and publications. Books published this year by staff of the museum included *Orders from France: The Americans and the French in a Revolutionary World, 1780-1820* by Roger G. Kennedy, the director of the National Museum of American History, and *The Bishop's Boys*, a biography of Orville and Wilbur Wright by Tom D. Crouch, chairman of the Department of Social and Cultural History. Claudia Kidwell, curator in the Division of Costume, coedited with Valerie Steele *Men and Women: Dressing the Part*, a study of the relationship between changes in fashion and changing ideas about masculinity and femininity. In the Department of the History of Science and Technology, Barbara Janssen published *Technology in Miniature: American Textile Patent Models, 1819-1840*.

The Department of Social and Cultural History continued

to emphasize ethnic groups in America, concerns related to gender, and the lives of ordinary people by combining social history and the study of historical artifacts. Bernice Johnson Reagon, in collaboration with the Program in African American Culture, organized a three-day national conference at the museum on nineteenth-century worship traditions that have survived. Lonnie Bunch, a newly appointed curator in the Division of Political History, is developing a section on African American communities for the department's next permanent exhibition, "Land of Promise: America in the Nineteenth Century." A gift of more than one hundred nineteenth- and early-twentieth-century objects related to the Journeymen Tailors' Union of America and the American Federation of Labor will bring artifacts of the lives of working people into the exhibition.

The Division of Musical History produced performances, public broadcasts, and recordings of period music featuring the Smithson Quartet, the Castle Trio, and the Smithsonian Chamber Players. In April, the group presented the symposium, "The Ellington Legacy and the Smithsonian."

This year, many staff members received recognition for their professional achievements. The work of Curator John Edward Hasse, producer and annotator of the four-record set and book *The Classic Hoagy Carmichael*, was honored by two Grammy Award nominations and an award in England as "Best Popular Historical Album." Eugene Ostroff, curator of photographic history, received the Outstanding National Service Award from the Society of Imaging Science and Technology. This division was also represented on many conference agendas. To cite only a few examples, Claudia Brush Kidwell gave the paper "Transformation of the Clothing Industry into the Fashion Industry" at a meeting on "Consumer Culture and the American Home." Rodris Roth spoke on "Oriental Carpet Furniture" at a conference devoted to the subject "Culture and Comfort: The Draped and Upholstered Interior." Spencer Crew served as program cochairman for the annual meeting of the Oral History Association; his paper "Can You Say It If You Can't See It: The Use of Generic vs. Authentic Artifacts" was presented at the Organization of American Historians' meeting.

A wide range of collections management projects are also under way at the museum. September marked the completion of a two-year project in the Division of Graphic Arts to rehouse some 35,000 prints in acid-free folders and to record data on the conservation needs of the specimens. The project was directed by Helena Wright, funded by the Women's Committee of the Smithsonian Associates, and

carried out jointly with the Division of Conservation. Sheila Alexander began the transfer of some 25,000 objects in the Division of Ceramics and Glass to new reference areas—an example of the extensive movement of objects necessitated by the museum's master space plan.

During the past year the Department of the History of Science and Technology has been involved in two major exhibition projects. The "Information Age" exhibition, scheduled to open in the spring of 1990, has now moved into the final stages of design and the beginning stages of production. Concept development has also begun on "Science in American Life." In June, the American Chemical Society approved the department's feasibility for the exhibition and agreed to supply major funding. As proposed, "Science in American Life" will include a science discovery center and sections on the history of scientific ideas and the role science plays in everyday life.

Staff within various divisions have contributed to the Smithsonian Videohistory Program, which has made possible valuable video interviews with inventors associated with some of the museum's most recent and important collections. Members of the Division of Medical Sciences recorded an interview with Dr. Robert Ledley, inventor of the first whole-body CAT-scanner. Other staff documented robotics research through video interviews with researchers at the University of Maryland and the National Institute of Standards and Technology. Mikhail Timofeyevich Kalashnikov, designer of the AK47 assault rifle, was interviewed in Moscow in July.

A brief list of some of the papers delivered by members of the department suggests the breadth of their scholarly investigations. Arthur P. Molella, chairman of the department, spoke on "Sigfried Giedion and *Science Moderne*" at the Institut für Geschichte und Theorie der Architektur in Zurich, Switzerland. Bernard Finn delivered a lecture titled "Submarine Telegraphy: Technical Supply vs. Social Demand" at a symposium in Villefranche-sur-Mer, France. Barbara Melosh spoke to the American Studies Association on "Speaking of Women: Museum Representations of Women's History."

Staff of the National Numismatic Collection (NNC) pursued their scholarly interests at home and abroad. In January, Mrs. Elvira Clain-Stefanelli, executive director of the NNC, was nominated honorary member of the Societe Royale de Numismatique de Belgique. In April, she received the 1989 award of the Gesellschaft für Internationale Geldgeschichte (Society for International History of Money) in Frankfurt-

Main, West Germany. Dr. Richard Doty contributed a paper titled "The Export of an Idea: Three Case Studies" to a symposium, the "Techniques of Coin Production," sponsored by the British Museum and the United Kingdom Numismatic Trust. Mrs. Ann Guell, visiting museum professional from the University of Missouri, Columbia, provided invaluable help with the exhibition "Rome at War" and its catalogue.

The National Philatelic Collection (NPC) significantly expanded its exhibition programs, which this year included "Scouting of Stamps" and traveling exhibitions on airmail and U.S. postal history. The NPC began a quarterly newsletter and published a guide to the research library, both developed by Nancy A. Pope. A significant collections management project forged by Virginia Kilby involved the consolidation of the stamp design and production files of the U.S. Postal Service into a new storage system for easy accessibility and preservation. Negotiations also continued with the U.S. Postal Service about the establishment of a National Postal and Philatelic Museum in the redeveloped City Post Office building near Union Station.

In the Archives Center, the Center for Advertising History was established to undertake oral histories and other projects. The Center for Advertising History recently completed a documentation project on Federal Express advertising, and studies of Campbell Soup and Noxell advertising are under way. Print advertisements, television commercials, and oral histories documenting modern advertising campaigns are a major research resource. The now-completed remodeling of the Archives Center and enlarged reference area have drawn greater numbers of researchers and made their work far more comfortable and convenient. Preservation microfilming and other conservation measures have begun on the Duke Ellington Collection, acquired last year, and a computerized cataloging system for the Ellington musical manuscripts and sound recordings has been designed. Staff members have also prepared guides to three parts of the massive Sam De Vincent Illustrated Sheet Music Collection.

The Office of Academic Programs, established in 1987, is responsible for developing and coordinating the museum's relationship with colleges and universities and is also the editorial office for *American Quarterly*, the journal of the American Studies Association. The office held two conferences this year and planned a 1990 joint conference with American University marking the Voting Rights Act of 1965. The *American Quarterly* published its first exhibition reviews, first retrospectives on important books and writers in

American studies, and a new section called "Teaching American Studies." The support this year of American University and Georgetown brought the number of area universities contributing to the work of the journal to seven.

In addition to its major offices and curatorial units, the museum is home to several smaller projects—the work of small staffs investigating specific periods, historical figures, or aspects of museums. Staff of the Papers of Robert Mills completed work and sent camera-ready copies of 3,500 documents for publication in a microfilm edition. The work includes copies of Mills's correspondence, drawings, journals, diaries, and publications concerning architectural engineering projects during the first half of the nineteenth century. The project was supported by the museum, the National Endowment for the Humanities, the National Historic Publications and Records Commission, and several private organizations.

The museum also has provided space and support to a project of the American Association for State and Local History titled *Common Agenda for History Museums*, which is being funded by the National Endowment for the Humanities. In July the *Common Agenda* completed its two-year grant project to help standardize the development of computerized data bases on history museum collections and to increase contacts between academic historians and other disciplines with history museum staff. The *Common Agenda* is now a permanent core program of the association.

Acquisitions

The scope of research and collecting at NMAH means that acquisitions in any year will represent a remarkably broad range of subjects. Notable additions to the museum's collections this year included many artifacts of twentieth-century society and culture, such as Larry Zimmerman's *World's Fair Collection*, composed of about 7,000 objects and 1,600 graphic items that date from 1851 to the 1980s; several hundred ceramic tablewares produced by the Salem China Company that date largely from 1930 to 1960; a collection of Max Factor cosmetics from the 1920s through 1950; and two chairs by African American chairmaker Willie Lee Nabors of Mississippi. Acquisitions in the history of science and technology included 196 Chinese patent medicines, tonics, vitamins, antibiotics, and contraceptives; and Digital Equipment Corporation's PDP-1, the first true minicomputer. The tens of thousands of objects acquired by the museum's philatelic and numismatic collections included rare booklet

panes of stamps developed during World War I for use by the American Expeditionary Forces and twelve medals awarded to Dr. Alexander Wetmore, sixth secretary of the Smithsonian.

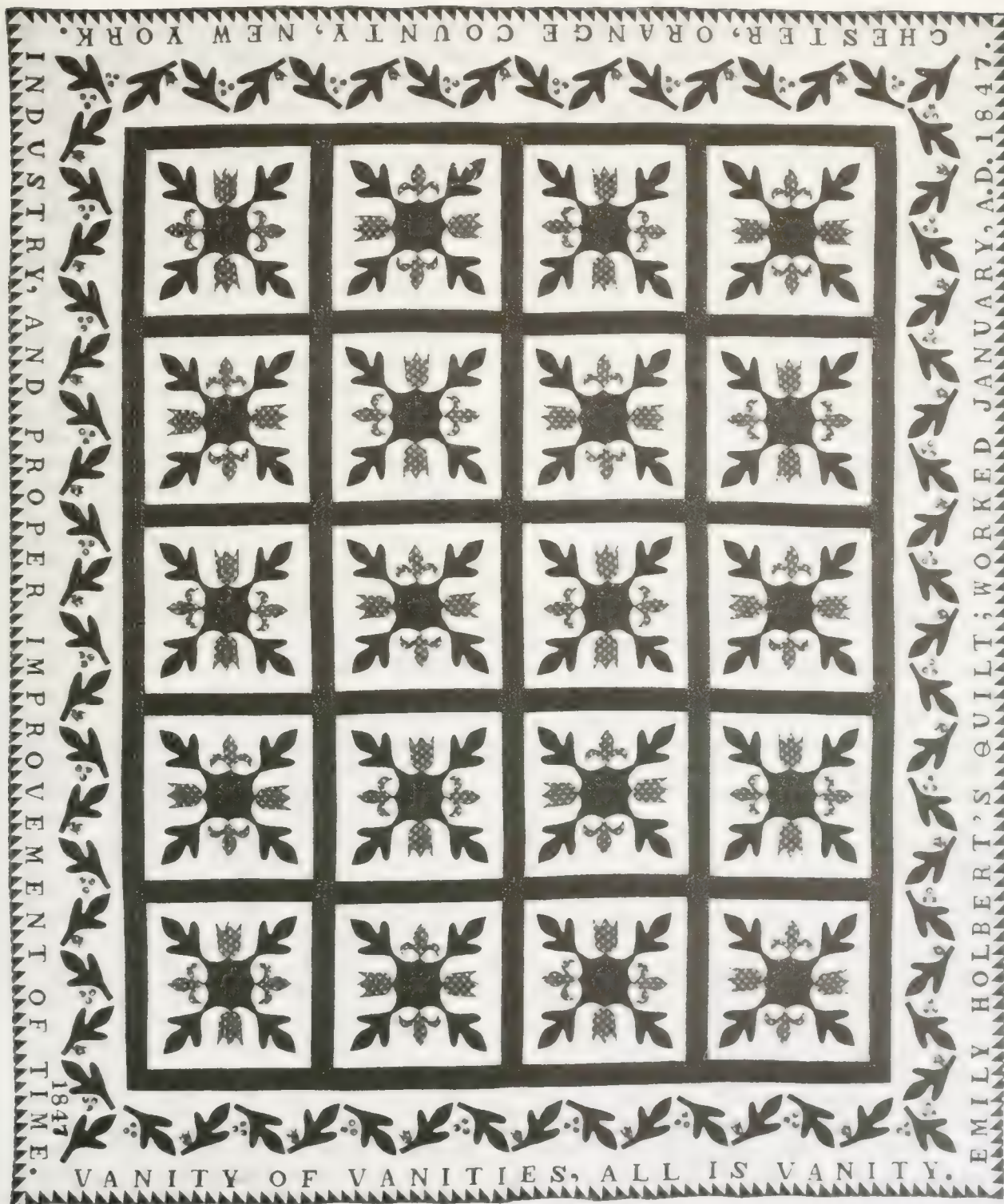
Public Programs

The Department of Public Programs continued to search for more effective ways to bring the messages of the museum's exhibitions and research to visitors and to new audiences through performances, seminars, films, publications, and curriculum materials. A curriculum kit for the "Field to Factory" exhibition was tested by the Education Division in thirty classrooms across the nation. Ninety thousand visitors participated in "hands-on" demonstrations conducted by volunteers in five exhibitions; docents led close to two thousand tours in the museum; and the division received an Educational Outreach grant to experiment with mobile demonstration stations. The division also produced public seminars on the freedom of the press, waste disposal, neighborhood preservation, waterfowl conservation, and seventeenth-century Delaware Valley foodways, as well as a week-long Holiday Celebration in mid-December.

The Division of Museum Programs produced 114 concerts and performances in eight different series, bringing a broad sampling of American music to the public in free performances. The year's highlight was a month-long Duke Ellington Festival marking the ninetieth anniversary of the composer's birth. The festival featured thirty-seven performances of Ellington's music. The division added three new program series this year: *American Sampler*, which features American eighteenth- and nineteenth-century music and dance traditions; *Music in America*, a look at the wide variety of American ethnic music; and *Capitol Writers*, a series of readings and discussions by Washington-area writers.

The Program in Black American Culture changed its name this year to the Program in African American Culture. A new director, Dr. Gwen Robinson, formerly of the Department of

This cotton quilt in the collections of the National Museum of American History extols "Industry and Proper Improvement of Time" along one border and declares "Vanity of Vanities, All Is Vanity" on another. Dated 1847, the quilt was made by Emily Holbert of Chester, New York, and donated by Mr. and Mrs. John Beard Ecker (Mrs. Ecker is the grandniece of the quiltmaker).



History at the University of Florida, joined the staff in January. This year's public programs included the annual Martin Luther King celebration in February, which featured Rev. Fred Shuttlesworth; a seminar on the black American beauty tradition; and a tribute to composers Francis Hall Johnson and Wendell P. Whalum. The Columbus Quincentenary Program produced a small exhibition and a public seminar that explored the interrelationships between Spanish colonists and Native Americans in the Spanish borderlands.

One departmental publication of note was "Soldier of the Cross," an audiotape cassette based on a public program about Richard Allen, founder of the African Methodist Episcopal Church.

Behind the Scenes

Work goes on continually to maintain the building and the collections and to prepare the broad range of exhibitions and programs. This year, the museum continued its master space plan, which is being coordinated by the Office of Administration. The plan calls for a comprehensive renovation of virtually all of the building's heating, air conditioning, and fire prevention systems. The Office of the Building Manager assisted in planning, coordinating, and overseeing the implementation of the master space plan and the construction of several major exhibitions; coordinated the replacement of both entry ways and all windows and window walls throughout the museum; and supported more than 2,500 special events, including the vice president's inaugural reception.

Preservation of the museum's costume and textile collections continued as a major emphasis in the Division of Conservation. Several of the more recent first ladies' gowns were treated and installed on redesigned mannequins in the new "Ceremonial Court" exhibition, and pretreatment examination and testing of the remainder of this important collection were begun. Although more than 3,200 objects were surveyed, treated, and mounted in the division laboratories for exhibitions and loans, treatment of the more than 400,000 objects known to need stabilization and rehousing was slowed somewhat by the heavy demands of current exhibitions and building renovation projects. Although staff and contract conservators made good progress with the graphic arts print collection and the Duke Ellington Collection, the identified needs of the museum's paper-based collections far outstrip the resources of available staff, space, and storage equipment.

The Division of Conservation staff gave tours of the

laboratories and conservation information to more than four hundred people, including groups of Japanese curators and Soviet museum directors.

At the Office of the Registrar, more than 17,000 objects were accessioned into the permanent collection, and 3,932 objects were lent or borrowed for exhibitions. Important loans included more than 100 objects to an exhibition of patent models that traveled through Japan and 60 objects of George Washington memorabilia to two museums honoring the anniversary of Washington statehood. The Record Files Division undertook a conservation survey to assess the condition of older, fragile accession documents. This study will lead to further rehousing and specialized treatment for the preservation of these critical research files.

The Computer Services Center continued its support for office automation, collections system development, information architecture, and publishing. It also initiated a computer-aided design (CAD) program. The first phase of the information architecture project, analyzing collections management, educational services, exhibitions, and research, was completed and phases in data modeling and analysis were begun. The results will ultimately become part of the museum's portion of the SI Collections Information System.

The Computer Services Center also initiated a cooperative project with the University of Maryland's Interior Design Department to develop CAD drawings of the museum for use in exhibitions and facilities management programs. Drawings of the structural components of the first through fourth floors were finished in May, and work to confirm and add more data is under way.

National Museum of Natural History/National Museum of Man

The National Museum of Natural History/National Museum of Man (NMNH), the nation's largest research museum, houses the most extensive and the most valuable natural history and anthropological collections in the world—more than 119 million specimens of plants, animals, fossils, rocks, minerals, and human cultural artifacts. These vast, extensively documented holdings support research by the 135 doctoral-level scientists on the museum staff, by visiting scholars and students from all over the world, and by more than 50 resident scientists from affiliated federal agencies with natural history functions (the U.S. Department of Agriculture, the National Marine Fisheries Service, the U.S. Geological Survey, and the National Institutes of Health).

The museum is an active member of the scholarly community and has numerous publications, symposia, and scholarly exchanges to its credit. The public benefits from its diverse exhibitions, popular publications, public forums, and educational programs. Testimony to the success of the public programs are the six to seven million visits recorded each year, making NMNH by far the most heavily visited natural history museum in the world.

Exhibitions

This year, the NMNH brought a wide range of innovative exhibits to the public. Perhaps this year's "hottest" exhibition was "Inside Active Volcanoes: Kilauea and Mount St. Helens," which attracted large crowds throughout its three-month run. The exhibition coincided with the peak summer tourist season and the opening of the 28th Geological Congress, an international gathering of more than 6,000 earth scientists, held in the United States in 1989 for the first time in fifty-six years. The exhibition was developed for the Smithsonian Institution Traveling Exhibition Service (SITES) by museum volcanologist Dr. Richard Fiske, who drew upon the research of the museum's Global Volcanism Program and that of colleagues at the U.S. Geological Survey Cascades and Hawaiian Volcano Observatories to develop the show. Innovations of the exhibition included a unique fiber-optic map that displays at a touch the locations of a thousand of the world's most active volcanoes; interactive computer displays that let the visitor call up video images of volcanoes, look up facts about them, and tap into the museum's Global Volcanism Program's computer bulletin board of field reports on active volcanoes; and a real-time seismic computer display that monitors the seismic activity on the island of Hawaii, demonstrating that it is one of the most seismically

active places on Earth.

The major international exhibition "Crossroads of Continents: Cultures of Siberia and Alaska" was on view in the museum's Thomas M. Evans Gallery for six months in 1988–1989. Developed jointly by the museum and the Soviet Academy of Sciences in collaboration with the International Research and Exchange Board, the exhibition marks the first time that people of both continents have the opportunity to view many early and important archaeological and ethnographic collections from the remote but important North Pacific geographic region.

Poking fun at the Hollywood stereotype of the Native American, artist Henry Fonseca's exhibition "Coyote: A Myth in the Making" featured works focusing on Fonseca's vision of Coyote, a magical being prominent in the traditional literature and religious beliefs of many native peoples of the Americas.

The ten-year retrospective of the Native American artist was organized and circulated by the Natural History Museum of Los Angeles.

Another exhibition highlighting Native American culture was "Iroquois Beadwork," which traced the evolution of the beadwork craft within the changing Iroquois culture from the introduction of glass beads in the seventeenth century to the present. The first of a planned series of temporary exhibitions from tribal museums and collections, the exhibition features nearly 150 pieces, including representative material from all Iroquois tribes.

A series of shows chronicling botanical cycles began with "Flowers from the Royal Gardens of Kew: Two Centuries of Curtis's Botanical Magazine," which featured seventy watercolors dating from the eighteenth to the twentieth century by renowned botanical illustrators. The exhibition was organized by the Royal Botanical Gardens, Kew (London, England), to celebrate the 200th anniversary of the magazine (1787–1987).

"John Muir's High Sierra: A Watercolor Diary by Tony Foster" featured twenty-eight panoramic landscape views painted in watercolor by the artist while on a 200-mile walk through the High Sierra in California.

To commemorate the twenty-fifth anniversary of the passage of the 1964 Wilderness Act, the Wilderness Society organized "Wilderness America," an exhibition of fifty color photographs of the American wilderness by thirty noted landscape photographers.

An exhibition tracing the plants and animals that began to move onto land 420 million years ago during the Silurian

Period opened in the museum's permanent paleontology exhibition complex. Work continued on the final exhibit hall in the paleontology complex, "Life in the Ancient Seas," scheduled to open in spring 1990. Museum staff continued to plan "A Vision of the Americas," a new permanent hall of Native American cultures. Innovative and experimental displays, including a small theater for films by and about Native Americans and an area for live performances and demonstrations of Native American handicrafts, were established for testing and possible incorporation into the new permanent display.

Notable Publications

Global Volcanism 1975-1985: The First Decade of Reports from the Smithsonian Institution's Scientific Alert Event Network (SEAN) was edited by museum researchers Lindsay McClelland, Dr. Tom Simkin, Marjorie Summers, Elizabeth Nielsen, and Thomas C. Stein. Jointly published by Prentice-Hall and the American Geophysical Union, this 672-page book is the most extensive record ever assembled of all known volcanic events in the world—both major and minor—during a ten-year period.

Introduction to the Study of Meiofauna, coedited by museum marine biologist Dr. Robert Higgins, who is one of the world's top authorities on meiofauna, and published by Smithsonian Institution Press. The book sums up comprehensively for the first time new advances in our knowledge of a group of microscopic invertebrates of key ecological importance, which live in freshwater and marine sediments.

History of Indian-White Relations, volume 4 of the Smithsonian's encyclopedic *Handbook of North American Indians*, was published by Smithsonian Institution Press. The book's fifty-seven chapters, written by leading historians and anthropologists, cover political, military, economic, and other aspects of Indian and white relations from Colonial times to the present.

A Field Guide to the Marine Plants of the Caribbean was prepared by a team of museum marine botanists (Diane S. Littler, Dr. Mark M. Littler, Katina E. Bucher, and Dr. James N. Norris), who did the research, writing, and color photography, and was published by Smithsonian Institution Press. The first such guide ever produced, it is designed for both the marine biologist and the amateur skin diver. It took eight years to complete and involved oceanographic expeditions from Bermuda to Brazil and the Lesser Antilles to Panama.

Fossil Birds from Late Quaternary Deposits in New Caledonia, by museum ornithologist Dr. Storrs L. Olson and

colleague Jean Christophe Balouet, is a study of fossil birds from cave deposits in New Caledonia in the South Pacific. The book adds to the increasing evidence that man, especially prehistoric man, has been responsible for exterminating a large proportion of the native island faunas. This work was published as contribution number 469 in the Smithsonian Contributions to Zoology.

The Great Tzotzil Dictionary of Santo Domingo Zinacantan was edited by museum anthropologist Dr. Robert M. Laughlin, the author of a dictionary of the contemporary Tzotzil language, and published as contribution number 311 in the Smithsonian Contributions to Anthropology series. This three-volume dictionary of Tzotzil (Mayan) vocabulary, based on a sixteenth-century original compiled by an anonymous Dominican friar, examined the grammatical changes that have occurred in this Mayan language over the past four centuries. Laughlin concludes that perhaps literacy, which traditionally has been thought to deter language change, in fact accelerates it.

Sharks in Question: The Smithsonian Answer Book, written by museum researchers Dr. Victor Springer and Joy P. Gold, was published by Smithsonian Institution Press. Inspired by the thousands of questions the public asks the Smithsonian about sharks, the authors try to dispel some of the misconceptions about sharks that resulted from the *Jaws* motion pictures.

An Interdisciplinary Bibliography of Freshwater Crayfishes, by museum researchers William H. Hart and Dr. Horton H. Hobbs, brings together for the first time all of the scientific literature on freshwater crayfishes, as well as popular books and articles dealing with biological aspects of crayfish—more than eleven thousand listings.

Education

The museum's Office of Education initiated two major outreach programs in 1988-1989. "New Americans—New Challenges" was designed to foster greater understanding and appreciation of the diverse cultures of recently arrived Southeast Asian refugees and immigrants in the Washington, D.C., area. Funded by a grant from the Educational Outreach Program, the project received enthusiastic support from the local Cambodian, Laotian, Thai, and Vietnamese communities. The program concluded with "Southeast Asian New Year," a series of three special Southeast Asian museum performances for school groups and the general public.

featuring Vietnamese music, Cambodian and Thai classical and folk music and dance, and Lao traditional music.

To demonstrate that the cultural heritage of Native Americans has not vanished but is alive and thriving in many different forms throughout North America, a program was created that brings storytellers, musicians, dancers, and artisans to the museum setting from tribes throughout the United States and Canada. The program, begun in July, will continue for two years. Among the participants this year was Vanessa Morgan, an Oklahoma Kiowa, whose skill at bead-working made her a 1989 recipient of a National Heritage Award from the Folk Art Program of the National Endowment for the Arts.

The focus for many educational activities in 1989 were the two special exhibitions in the Thomas M. Evans Gallery: "Crossroads of Continents: Cultures of Siberia and Alaska" and "Inside Active Volcanoes: Kilauea and Mount St. Helens." For the first exhibition, a group of King Island Eskimos were invited to the museum to perform traditional songs and dances and to demonstrate crafts techniques. A "Crossroads" film festival, *Changing Views: Filming the People of the North Pacific Rim*, was presented with rare and early footage of northern Alaska and Siberia from Smithsonian and Finnish film archives and recent Soviet films on Siberian people. The first troupe of musicians and dancers ever to appear in the United States from northeastern Siberia (representing the Nanai, Ulchi, and Koryak peoples) presented a series of programs of music, dance, storytelling, and crafts.

More than 22,000 people attended free films and lectures sponsored by the museum in 1989. Highlights included illustrated lectures by Grenville Lucas, keeper of the Herbarium at England's Royal Botanic Gardens; Thomas Lovejoy, assistant secretary for external affairs, on threatened tropical rainforests; and talks about human origins in Africa by museum researchers Richard Potts and Allison Brooks.

Symposia

A workshop on Caribbean mangrove ecology was held for scientists participating in the museum's mangrove community study on Twin Cay, Belize. Coordinated by museum marine biologist Dr. Klaus Ruetzler, the long-term goal of this unprecedented research program is to document the biology, geology, ecological balance, economic importance, and aesthetic value of a mangrove swamp, using the example of a diverse and undisturbed 1-square-kilometer swamp



Anemone bucharica (Windflower) (1970), watercolor and pencil on paper by E. Margaret Stones, was shown in the National Museum of Natural History exhibition, "Flowers from the Royal Gardens of Kew: Two Centuries of Curtis's Botanical Magazine." (Photograph courtesy of Hood Museum, Dartmouth College)

community on the barrier reef of Belize, a Central American nation on the Caribbean coast.

The first joint Mexican and American workshop focusing on the taxonomy and natural history of the bees of Mexico was held in Mexico. Organized by Mexican and U.S. scientists through funding provided by the Smithsonian Office of International Relations (International Exchanges Program), the workshop was an outgrowth of a cooperative program on the bees of Mexico. One of the leaders of this international cooperative program is museum entomologist Dr. Ronald McGinley.

"Changing Patterns of Disease and Demography in the Americas before and after 1492," the museum's third Quincentennial Public Forum, brought leading international authorities to the museum to discuss current research on human disease experience in the New World before 1492 and the demographic impact of Old World disease imports on the New World populations during the contact period.

Molecular Biology Program

The museum's new laboratory of Molecular Systematics became fully operational in 1989. This facility provides a powerful new thrust to the museum's programs in systematic and evolutionary biology, making possible biochemical and molecular genetic studies of DNA and proteins useful in resolving questions about the natural history and evolutionary biology of organisms. The laboratory, located at the Museum Support Center in Suitland, Maryland, is directed by Dr. Michael Braun.

Linguistics Research

Museum anthropologist Ives Goddard and colleague Dr. Kathleen Bragdon presented copies of their newly published study, "Native Writings in the Massachusetts Language" (American Philosophical Society), to representatives of the Wampanoag Tribal Councils of Mashpee and Gay Head (Massachusetts) at a ceremony at the Commonwealth Museum and the Massachusetts Archives, Boston. This two-volume work contains the first translations ever made of the body of known surviving manuscripts written by Christian Indians in southeastern Massachusetts in the Colonial period. The communities on Cape Cod and Martha's Vineyard are the principal descendants of the Indians who wrote in the Massachusetts language during the Colonial period. The presidents of the Mashpee and Gay Head Tribal councils praised the study as a significant contribution to the Wampanoag cultural patrimony.

New Acquisitions

Four thousand silver-spotted fritillary butterflies collected in Nebraska and eight other western states, Canada, and Mexico over a period of forty years by Orville and Eunice Spencer of Lincoln, Nebraska, filled a gap in the museum's butterfly holdings. With many rare specimens, it is one of the finest butterfly collections donated to NMNH in recent years.

The late John M. and Lucy McLuckie of Coal City, Illinois, assembled one of the best private collections of American coal-age fossils. Their collection of more than 2,500 Paleozoic era specimens of coal-swamp flora and fauna was donated to the museum by the McLuckie children. Most of the material is of exceptional quality and spectacular size,

including one-of-a-kind and rare imprints of ancient coal-forest seeds, cones, fern branches with long needle-like leaves, and the fossilized bark of scale trees that grew to a hundred feet.

Biodiversity Research

The museum added a major component to its biodiversity program in 1989 by taking over administrative responsibility for the Minimum Critical Size of Ecosystems project (MCS) from the World Wildlife Fund, which initiated it. The project, located in Manaus, Brazil, has made a significant contribution to tropical forest conservation by demonstrating that species disappear from a land area in inverse relation to its size.

For the third consecutive year the museum sent teams of scientists to Amazonia forests in Manu Reserved Zone, Peru, to participate in long-term, in-depth biodiversity inventories under way in collaboration with the Peruvian government and participants from previous years. Data from these studies will help protect many of the rare and endangered species of the neotropics. Some of these plant species may yield new sources of food, medicines, biological controls, and important germ plasm for agricultural use.

Museum scientists continued a long-term study of the composition, distribution, and evolution of the plants and animals in Amazonia and the Atlantic forests. They also remained involved in a multinational effort to investigate the biological diversity of the Guyanas. Among the explorations mounted by the museum in 1989 was a collecting expedition to three locations in Guyana (Kato, Kaieteur Falls, and Paramakatoi), led by a museum botanist and two World Wildlife Fund zoologists.

National Portrait Gallery

The National Portrait Gallery studies the past through portraits of people who have made significant contributions to American history. The quality of the portraits also reveal much about the sensibility of the artists who created them. By collecting, studying, preserving, and exhibiting portraits in all media as both historical and artistic documents, the gallery gives new dimension to the heritage and accomplishments of the American people.

Exhibitions

This year, the gallery featured an unusual array of exhibitions highlighting epochs in history, as well as glimpses of individual artists. "Pioneers of American Broadcasting" was co-organized by the gallery and the Museum of Broadcasting, New York, in October 1988. The exhibition featured inventors, entertainers, writers, and newscasters who had a significant impact on radio and television history. In addition to portraits and memorabilia, the exhibition included excerpts from radio and television programs played on monitors located throughout the galleries.

As part of its celebration of the bicentennial of the Constitution, the gallery joined with the U.S. Senate and the House of Representatives in presenting "The First Federal Congress, 1789-1791," from March through July. Senator Robert Byrd, Representative Lindy Boggs, and Secretary Adams opened this exhibition at a special reception attended by many members of Congress. Partial funding for the exhibition was received from the Bicentennial Commission of the U.S. Constitution and from the firms of Donaldson, Lufkin & Jenrette and the Equitable.

"Isamu Noguchi Portrait Sculpture," the first major retrospective of an important and little-known aspect of the artist's work, opened in April 1989. Favorably reviewed in the national press, this exhibition traveled to a branch of the Whitney Museum in New York after its Washington closing the previous year.

Loans from the National Portrait Gallery to museums around the world continue to increase. Because of the many international celebrations of the 150th anniversary of photography, loans from that collection have been particularly numerous.

Acquisitions

The presidential portrait series was augmented by the gift of sculptor Marc Richard Mellon's bronze bust of President

Bush, given by Vincent and Sheila Melzac.

Major gifts to the collection included the John Smibert portrait of Bishop Berkeley from the Morris and Gwendolyn Cafritz Foundation, the Rene Bouche portrait of Benny Goodman from the musician's daughters, three self-portraits in different media by Victor Hammer, as well as "The Family"—an important limited-edition portfolio of sixty-nine portraits by Richard Avedon of the men and women who made up America's political leadership in 1976. This series was originally commissioned by *Rolling Stone* magazine. Acquisition of the Avedon photographs was funded by generous contributions from Mrs. J. Paul Austin and the James Smithson Society.

Through purchase, the gallery was able to acquire Cephass Thompson's portrait of William Wirt, U.S. attorney general from 1817 to 1829, as well as busts of the writers A. Bronson Alcott and J. P. Marquand, portraits of Gertrude Stein with Alice B. Toklas, and the artists Thomas Seir Cummings, Jacob Epstein, Ernest Lawson, and Mark Tobey.

The Prints and Drawings Department acquired a number of significant portrait drawings in 1989. Highlights of these acquisitions included crayon portraits by Hugo Gellert of geographer Gilbert Grosvenor, convicted espionage agents Ethel and Julius Rosenberg, journalist Mary Heaton Vorse, and others; Boardman Robinson's image of journalist John Reed; an English watercolor of actor Edward Sothorn; pencil drawings by Miriam Troop of diplomat Ellsworth Bunker, financier and art patron Joseph Hirshhorn, author James Farrell, labor leader A. Philip Randolph, and physician Howard Rusk; and portraits of artists Milton Avery, Stanton MacDonald-Wright, and Theodore Roszak. The gallery also acquired several groups of caricature drawings, including works by Peggy Bacon, Will Cotton, David Levine, Charles Johnson Post, and Paolo Garretto.

The gallery was particularly fortunate to add several portraits of important African American subjects to its collection, including a lithograph of abolitionist Henry Bibb, a drawing of dancer and choreographer Katherine Dunham, and posters of pugilist Jack Johnson and World War II hero Dorie Miller. Other posters acquired were images of Alla Nazimova, Will Rogers, Veronica Lake, Lon Chaney, and John Gilbert. Among other important print purchases were lithographs of author Theodore Dreiser by Adolf Dehn and of motion picture director Rouben Mamoulian by Don Freeman, as well as an etching of George Washington by Joseph Hiller, Jr.

Important photographs purchased for the gallery's collec-



This painting of Anglican cleric-philosopher George Berkeley (1685–1753) by colonial artist John Smibert was a gift to the National Portrait Gallery by the Morris and Gwendolyn Cafritz Foundation. Berkeley sailed to America in 1728 to establish a school dedicated to creating a truly cultured New World civilization.

tion in 1989 included a unique, life-size, Polaroid Polacolor self-portrait by contemporary artist Lucas Samaras; a rare vintage print of Gertrude Stein and Alice B. Toklas taken in Stein's Paris home by Man Ray in 1923; a daguerreotype of future outlaw Jesse James at the age of three, as well as a tintype portrait of the adult James, circa 1870. Other unique images acquired were a vintage platinum print portrait by Alice Boughton of poet and reformer Julia Ward Howe; a daguerreotype of artist Charles Loring Elliott attributed to Mathew Brady; a handsome, vintage portrait of artist Louise Nevelson by Lotte Jacobi; Paul Haviland's rare, cyanotype portrait of photographer Alfred Stieglitz from 1910; an informal view of photojournalist Arthur Fellig (better known as "Weegee") by news photographers Bert Brandt and Edward Jerry; and a dramatically posed, vintage silver print of evangelist Aimee Semple McPherson taken at the Gerhard sisters' studio in St. Louis in 1923.

Several significant gifts also added to and enhanced the gallery's photographic holdings in 1989. A gelatin silver print of author Lillian Hellman by Marianne Cook joined the collection as a gift of the photographer, while an anonymous donor gave a portrait of author James Jones by Nancy Crampton. A 1948 vintage portrait of public official David E. Lilienthal came as a gift from the family of Mr. Lilienthal.

Publications

Exhibitions have been the focus of publishing activity in 1989. The gallery's most notable accomplishment came with the publication of *The First Federal Congress*, an in-depth study of this historical landmark in history. The Publications Department also completed work on four other exhibition-related books: *Isamu Noguchi Portrait Sculpture*, *Irving Penn Master Images*, *To Color America: Portraits of Winold Reiss*, and *Portraits of the American Law*, as well as various brochures related to the exhibitions. The Smithsonian Institution Press is distributing all but one of the books—*Portraits of the American Law*—which, in a new venture for the National Portrait Gallery, will be distributed by the University of Washington Press.

Education

The Education Department of the National Portrait Gallery combines a daily schedule of gallery tours with intensive elementary and secondary school programs, as well as senior citizen outreach programs. These outreach programs and tours are conducted by trained education aides and docents. The gallery's education program includes slide-lecture presentations such as "Yet Do I Marvel," which illuminates the careers of black poets and writers such as Phillis Wheatley and Alice Walker; "FDR, A Rich Legacy"; and musical performances such as "A Tribute to Cole Porter." Programs have been developed to address the needs and interests of multiethnic communities nationwide and of broad audiences locally.

A new program, "Cultures in Motion: Portraits of American Diversity," (CIM) has been designed to promote serious reflection on portraiture, biography, and history. These programs bring the gallery's collection to life through such formats as lectures, symposia, one-person biographical plays, recitals, concerts, storytelling, and other performance media. The programs provide a constructive way for museum visitors to broaden their understanding of the multicultural aspects of American history.

The Education Department has developed a brochure to attract "mobile seniors" who have access to transportation to the National Portrait Gallery for a morning or afternoon. The goal is to reach older people living within two hours of the District of Columbia. To reach other audiences, research is being conducted to develop supplemental education pack-

ages for teachers nationwide and a self-guide brochure for families with young children.

The Education Department also offers a Lunchtime Lecture series related to the gallery's special exhibitions. The permanent collection is highlighted through Speaker's Bureau slide-lectures on themes such as "Leading Ladies: Women and Reform in the United States" and "Men of Progress: Nineteenth-Century American Inventors."

In cooperation with the Smithsonian Resident Associate Program, the gallery has continued its series of "living self-portraits," public interviews with distinguished Americans. The gallery's historian, Marc Pachter, interviewed Eleanor Dulles, whose remarkable public career included helping to shape America's role in the rebuilding of postwar Berlin, and Senator J. William Fulbright, the principal architect of America's international cultural exchange program.

Research

The Catalog of American Portraits (CAP) continued to serve researchers in the fields of American history and American art history during 1989. Research requests increased in number and complexity over previous years. CAP added

portrait records from the Midwest and California to its computer data base, bringing the total number of automated records to approximately 54,000. Participating institutions received automated printouts and accompanying negatives covering their portrait collections. With the receipt of a generous grant from the Women's Committee of the Smithsonian Associates, the staff researched and updated information about some 6,000 portraits in the southern United States.

In cooperative research efforts, the catalog staff shared its information about approximately 2,500 portraits of Native Americans with the National Museum of Natural History's Native American Indian Program and assisted the National Museum of American History's Division of Military History in the study of military uniforms as depicted in eighteenth- and nineteenth-century portraits. Information from these research projects will be incorporated into the Smithsonian Institution Collections Information System.

During 1989, the Peale Family Papers staff continued its work of transcribing, researching, and annotating the Selected Papers of the noted artist and naturalist Charles Willson Peale and his artist sons Raphaele, Rembrandt, and Rubens. The staff now has volume 3—*The Artist on His Farm, 1810–1820*—ready for the Yale University Press, with publication scheduled for April 1991. Work has begun on volume 4, which will cover the years 1820–1827, and on Charles Willson Peale's Autobiography (volume 5), both scheduled for publication in 1993.

The project's research program to identify the portraits painted by Rembrandt Peale (1778–1860) and to collect information about the extensive work of this important American artist is successfully under way. Publication of the *catalogue raisonné* of Rembrandt Peale's total *oeuvre* will meet scholarly needs in the art history world. An exhibition of Rembrandt Peale's portraits will follow the completion of the catalogue.



Andrew Ferguson, special assistant for media activities at Smithsonian, interviews Representative Lindy Boggs and Senator Robert Byrd at the opening of the National Portrait Gallery's exhibition, "The First Federal Congress, 1789–1791."

Office of Exhibits Central

How do you put a museum artifact on exhibit and help the visitor appreciate and understand its importance? The Office of Exhibits Central (OEC) tries to answer this question every day with artifacts that range from a piece of volcanic lava to children's art, from a Native American dance bustle to Himalayan masks.

OEC provides exhibit-related services throughout the Institution in the areas of exhibit design and script writing and editing, fine cabinetry, sheet plastics, packing and shipping artifacts, model-making, taxidermy, matting and framing, and silk-screening.

"Inside Active Volcanoes: Kilauea and Mount St. Helens," the office's largest single project in 1989, is an example of the variety of expertise available at the OEC. Designed and produced for the Smithsonian Institution Traveling Exhibition Service (SITES), the exhibition opened July 5 in the Thomas M. Evans Gallery at the National Museum of Natural History. OEC staff were involved in every aspect of the exhibition: design, editing, graphics production, model-making, and fabrication. In addition to designing all the components for the traveling exhibition, OEC staff also designed the installation for the Evans Gallery. All the visual elements were written to appeal to a wide and diverse audience. All the interactive computers and models were constructed so that they were accessible to people in wheelchairs.

The Model Shop created two life-size dioramas to help depict the different effects of the two volcanoes. An actual tree stump removed from the blast area was incorporated into the Mount St. Helen's diorama, and the ground was recreated with papier-mache. The Kilauea diorama displays a landscape after lava has flowed into and out of the area. The ground is cast from molds made in Hawaii of actual lava flows. A scale model of a lava lake and a cutaway model of the east rift zone were also built for the exhibit.

The office produced all of the components and furniture for the exhibition, including building wall-hung vitrines and free-standing exhibit cases, fabricating custom brackets and mounts for the artifacts, silk-screening all interpretive text panels and labels, and building shipping containers with custom-designed interiors to ensure the safety of the artifacts and exhibit components during three years of travel.

In addition to "Inside Active Volcanoes," OEC produced about a dozen other traveling exhibitions for SITES, an exhibition for the Smithsonian Tropical Research Institute, and two small exhibitions for the Resident Associate Program. OEC produced thirteen custom mannequins for the

National Museum of American History's exhibition "Men and Women"; built cases for an exhibition of Japanese hell scrolls at the National Museum of Natural History; and produced replica patent models, three mannequins, and a brochure for "The Real McCoy" at the Anacostia Museum. To help commemorate the bicentennial of the French Revolution, OEC put two documents on loan from the French National Archives on display in the Arts and Industries Building.

OEC's work is not limited to exhibits. The office designs brochures for the Smithsonian Associate Travel Program, supports the annual Washington Craft Show and Christmas Dance for the Women's Committee of the Smithsonian Associates, and produces panels for the Festival of American Folklife.

Keeping accurate records about completed projects and exhibits on the road helps OEC assess the suitability of new materials and techniques and in the process helps solve problems that might arise after an exhibition is in place or traveling. To this end, the administrative unit at OEC has installed a computer network system with a specially designed tracking system named ITEMS to track current work and record detailed descriptions of exhibitions that are on the road. All accounting and purchasing records will be transferred to the network in the coming year.

Office of Horticulture

The Office of Horticulture (OH) manages more than 40 acres of gardens and grounds, cares for the plants in museum interiors, and provides plants and floral arrangements for Smithsonian Institution special events and exhibitions. In addition to this full range of horticultural services, the office has developed educational and outreach activities and exhibitions for local, national, and international audiences. Large collections of living plants and horticultural artifacts and images are maintained for use in all of these programs.

Landscape projects and interior plants for new museum construction, building renovations, and expanded programs have substantially increased the scope of work for the office. In 1989, 55,462 annuals and 5,815 pot plants were raised, along with 53,000 spring bulbs, of which 685 were forced for interior display. In addition, 16,800 pansies, a full display of 3,150 ornamental cabbage and kale, and 700 trees, shrubs, and perennials were planted and maintained on the grounds. To complete these projects, OH staff made three seasonal plantings in the Enid A. Haupt Garden. More than 2,000 poinsettias were grown and used to decorate the museums for the holiday season. Seven hundred and fifty special events alone required the production, preparation, pickup, and delivery of 1,400 plants and 400 floral arrangements.

Program Highlights

Working with SI curators and designers, the office assisted with many exhibitions at the National Museum of Natural History, the National Museum of American History, the International Gallery, and the Renwick Gallery.

With the completion of the newly constructed access to the Smithsonian Institution Building came a new plan with plants selected for year-round interest, as well as twelve "Fern Leaf" settees for visitor relaxation. These reproductions from the OH garden furniture collection were fabricated by Brown Jordan through the SI Office of Product Development and Licensing.

The old grape-leaved linden (*Tilia platyphyllos* 'Vitifolia') that presided over the Enid A. Haupt Garden and provided a protective bower for millions of SI visitors fell during a January windstorm. The tree, thought to have been more than one hundred years old, has been replaced by a ring of five small-leaved lindens (*Tilia cordata*). The marble urn given to the Smithsonian as a memorial to Andrew Jackson Downing, the original landscape designer for the Smithsonian Pleasure Grounds, has been placed in the center.

As a memorial to Joseph L. Coudon VII, special assistant

to the secretary, a small-leaved linden (*Tilia cordata*) was planted near the north entrance to the Arts and Industries Building.

This year, the twelfth annual "Trees of Christmas" exhibition, a Smithsonian holiday tradition, was held at the National Museum of American History. Five new collections of ornaments created by American craftspeople were displayed and then donated to the office. Beadwork, lace-making, basket-making, shellwork, and carousel figures formed the new collections displayed in this popular show.

A delightful nineteenth-century fountain from the office's collection was installed in the Arts and Industries rotunda. The office has continued its changing exhibitions of plant collections in the north foyer of the National Museum of Natural History. Accompanied with fact sheets and a bibliography, the collections include ivies, poinsettias, ornamental grasses, and chrysanthemums.

Collections Management

Five exquisite watercolors of orchids were donated by the artist, Barbara Todd Kennedy. The office has now received seven works by Mrs. Kennedy.

Specimens from the orchid collection were displayed at the National Capital Orchid Society Forty-First Annual Orchid Show held at the National Arboretum. The OH received several awards from this prestigious event.

To date, fourteen thousand 35-millimeter slides and twelve hundred glass plates have been received for the Garden Club of America Slide Library of Notable Parks and Gardens.

During 1989, the Office of Product Development and Licensing successfully negotiated with furniture manufacturer Garden Source for a Smithsonian Collection. Now marketed nationwide, several urns, settees, and other garden accessories have been reproduced. Revenues from the sales of these reproductions will be used to enhance the office's collections.

Office of Museum Programs

The Office of Museum Programs offers professional training to museum staff in the form of programs in career counseling, internships, and professional residencies that are paired with regular course offerings on ethical, conceptual, and technical topics. To broaden the perspective of these programs, the office ensures that national and international colleagues are connected to Smithsonian staff members working on similar problems.

The Museum Reference Center, a Smithsonian Institution Libraries branch under the direction of the office, answers questions about museum operations, offering a unique service to museum professionals throughout the country.

Under the guidance of the assistant secretary for museums, the office began an intense period of reassessment and redefinition in 1989. New objectives were adopted that charge the office to provide leadership in defining conceptual and ethical issues in museology within the broader profession—and to provide professional staff development for museum practitioners in the Institution. Curators, designers, educators, conservators, collections managers, security personnel, and administrators at the Institution are now seen as potential students in the training programs of the office.

Special emphasis has been given to creating training programs that will encourage greater numbers of Native American and non-Western minorities to enter the museum profession. The Minority Awards program continues to support study at the Smithsonian for professionals from culturally diverse communities throughout the United States.

The task of converting the Office of Museum Programs into a training and discussion center has meant that some programs, including those that offer technical assistance, consultation, and audiovisual production and distribution, have been eliminated. The construction of a graduated curriculum for entry-level, midcareer, and senior museum professionals has now become the core of the office strategic planning. Instructional materials and publications are now being developed within the context of learning objectives for our seminars, workshops, and conferences. Once tested at the Institution, these courses will be made available through other national distributors.

Intern programs were consolidated in the office in 1989: Career counseling, intern placement, orientation to the Institution and to museum careers, and special opportunities for resident research and hands-on learning are now under one roof at the Office of Museum Programs.

The Museum Reference Center was relocated to new, larger, and more accessible quarters in 1989. Collecting the

ephemera of museum work—sketches of exhibitions, concept proposals, audience studies—began this year. This new aspect of collecting is in response to the emerging mission of the office to serve as a center for museological research, as well as for timely reference.

The office has entered a period of close evaluation of its recent offerings, analysis of current needs in the national and international museum community, and a development of cooperative initiatives with academic and professional museum studies programs. Regular courses will again be offered at the Institution and in other sites around the world beginning in the fall of 1990. The second half of 1989 was spent in shaping the new period of leadership in the museum studies programs of the Smithsonian. New approaches to program development, faculty training, and student evaluation of learning experiences are being constructed on a solid foundation of twenty-two years of experience in providing professional services to colleagues in museums around the world.

Office of the Registrar

The Office of the Registrar (OR) guides the Institution's collections management program. The small central staff advises, monitors, and assists bureau initiatives that provide access to and accountability for 137 million objects and specimens.

The primary document guiding collections activity—"Office Memorandum 808: Collections Management"—was substantially revised during 1989. With the cooperation of bureau specialists, the project restated the essentials of collections management. Particular emphasis was placed on more effective approaches to internal controls, collecting plans, and managing collections information. To more adequately reflect the secretary's concerns for institutional initiatives, the plans stress the need for balancing the goals of access and accountability and for collecting activities that show greater sensitivity toward cultural and biological diversity. The document includes an extensive glossary and a guide for the preparation of a collections management policy.

The automated Collections Information System (CIS) continued to occupy considerable time and attention throughout the year. The Local Collections Information System (LCIS) at the National Museum of American History came on-line, with all of the museum's departments contributing to the effort and using the product. The National Air and Space Museum launched a project to bring its collections on-line during 1990. Jane Sledge, the CIS administrator, was officially transferred to the Office of the Registrar from the Institution's Office of Information Resource Management.

The Registrar's Council, coordinated by the Office of the Registrar, received monthly presentations on topics such as "Domestic Indemnification," "How Museum Shipments Are Affected by the Regulations of the Department of Fish and Wildlife," and "Collecting Black Culture: Three Perspectives." Other training projects sponsored by the Office of the Registrar in collaboration with the Office of Museum Programs and the Registrar's Committee of the Mid-Atlantic Association of Museums included workshops titled "Preventive Conservation" and "How Safe Are You and Your Collections? Museum Fire, Safety, and Health."

In 1988, the office tested a survey instrument for museums using automation to manage museum collections. In 1989, the survey reached thirteen countries and received responses from more than four thousand museums. From these, an advisory panel of 428 museum professionals can be called upon by any museum attempting to establish or improve an automated collection documentation system.

Smithsonian Institution Traveling Exhibition Service

The Smithsonian Institution Traveling Exhibition Service (SITES) saw the arrival of a new director, Anna R. Cohn, this year. Under her leadership, SITES began to refocus and sharpen the direction of its programs.

To intensify the circulation of Smithsonian exhibitions, SITES added to its program calendar traveling versions of nine new projects created within the Institution. Included is a National Zoological Park exhibition about human perceptions of animals and attitudes toward them; two Anacostia Museum exhibitions about the black church movement in America and African American invention; a National Museum of American History exhibition on the relationship between fashion, gender, and social roles; a National Air and Space Museum exhibition about space transportation technology; a traveling version of the National Museum of Natural History's Columbus Quincentenary exhibition, "Seeds of Change"; a National Portrait Gallery exhibition surveying the work of artist Winold Reiss; a Sackler Gallery exhibition by one of India's leading photojournalists; and an exhibition based on the Office of Folklife Programs activities with family farms.

SITES also began to go beyond traditional exhibition subjects by initiating programs involving critical public concerns. Exhibition projects that explore issues of aging, the homeless, geographic illiteracy, global warming, and AIDS were introduced into the program for development over the next several years.

As part of a heightened effort to respond to the needs and interests of Smithsonian audiences beyond the National Mall, SITES began to explore new, low-cost exhibition techniques suitable for institutions that often had not been able to afford Smithsonian programs. Such institutions include smaller, budget-limited museums, many of which are located in nonurban areas, as well as schools, university galleries, libraries, and community centers.

To expand its service capabilities even more, SITES initiated a program to underwrite exhibition tours nationwide through State Humanities Councils. SITES activities in New Mexico set the model for this partnership. There, the State Council agreed to fund program rental and shipping fees for a group of host museums willing to schedule SITES exhibitions consecutively. Institutions throughout New Mexico that could not have afforded a SITES exhibition independently not only booked them, but also created accompanying public programs by pooling the limited funds available from each.

"Crossroads of Continents: Cultures of Siberia and Alaska"



Senator Kit Bond and his son track the history of volcanoes through a computer at the new exhibition, "Inside Active Volcanoes," organized by the Smithsonian Institution Traveling Exhibition Service.

began a six-year international tour following its opening at the National Museum of Natural History (NMNH). Organized by NMNH and circulated by SITES, the exhibition represents a ten-year collaboration and joint exchange among curators and scholars in the Soviet Union, Canada, and the United States. "Crossroads," which contains more than five hundred objects and will travel to museums in all three countries, explores themes of cultural diversity and the similarities between peoples on both sides of the Bering Strait.

"African American Artists, 1880-1987: Selections from the Evans-Tibbs Collection" began its three-year tour at Dartmouth College. Culled from the personal collection of a third-generation Washington, D.C., collector, the works represent leading African American artists of the twentieth century and show the influence of nineteenth-century black artists. Included in the exhibition are Edward Bannister, Jacob Lawrence, Romare Bearden, and Alma Thomas.

Together with the National Museum of Natural History and the U.S. Geological Survey, SITES also organized "Inside Active Volcanoes." This major exhibition examines two totally different types of active volcanoes and offers a fascinating account of how and why the great forces of nature exist. Its ten-city tour was made possible through generous funding from the Smithsonian Special Exhibition Fund and MCI Communications Corporation.

In keeping pace with its international profile, SITES introduced eight new exhibitions that are international in scope and subject. These programs highlighted major museum collections in Ireland, the Netherlands, and Italy; selections from private collections in Switzerland and at the Vatican; the international artists Kuniyoshi and Goya; and international topics dealing with China between its revolutions and Rome through the ages.

During the past year, SITES exhibitions traveled to thirty-seven cities in forty-six states, the District of Columbia, and countries abroad and were viewed by more than eleven million people. A total of 327 exhibition tours were scheduled between October 1, 1988, and September 30, 1989. Twenty-three new exhibitions were introduced in 1989.

Exhibition Summary

New Exhibitions, October 1, 1988, to September 30, 1989:
 African American Artists, 1880-1987: Selections from the Evans-Tibbs Collection
 America's Star: The U.S. Marshals, 1789-1989

Art of Our Time: Selections from the Olga Hirshhorn
 Collection
 Badges of Pride: Symbols and Images of American Labor
 China between Revolutions: Photographs by Sidney D.
 Gamble, 1917-1927
 Crossroads of Continents: Cultures of Siberia and Alaska
 Drawings by Utagawa Kuniyoshi from the Rijksmuseum
 Voor Volkenkunde, Leiden
 Facing the Gods: Ritual Masks of the Himalayas
 Goya Etchings: Caprichos, Desastres, and Tauromaquia
 Imperial Enamels: Chinese Cloisonné from the Pierre Uldry
 Collection
 Inside Active Volcanoes: Kilauea and Mount St. Helens
 Kaleidoscopes: Reflections of Science and Art
 The Legacy Endures: Conserving Wetlands and Waterfowls
 The National Geographic Society: 100 Years of Discovery
 and Adventure
 Portraits and Prospects: Master British and Irish Watercolors
 and Drawings
 Sea Stars
 Steichen and His Men: A Photographic Portrait of World War II
 Superman: Many Lives, Many Worlds
 Threadworks: Miniature Textile Art
 Training the Hand and Eye: American Drawings from the
 Cooper-Hewitt Museum
 View from Space: American Astronaut Photography,
 1962-1972
 Views of Rome: Watercolors and Drawings from the
 Collection of the Biblioteca Apostolica Vaticana

Exhibition Tours, October 1, 1988, to September 30, 1989

Number of bookings	327
Number of states served (including the District of Columbia)	45
Estimated audience	11 million
Exhibitions listed in 1988 <i>Update</i> (catalogue of SITES exhibitions)	116
New exhibitions produced this year	23

PUBLIC SERVICE

Ralph C. Rinzler, Assistant Secretary for Public Service

National Demonstration Laboratory for Interactive Educational Technologies

In January 1989, the National Demonstration Laboratory for Interactive Educational Technologies (NDL) moved to a large, specially designed facility in the Arts and Industries Building. With its increased accessibility and size, the NDL has become the gathering place for people around the world interested in the development of interactive technologies for educational purposes.

Interactive technology, or the combination of computers with multimedia materials, has spurred some of the most significant advances in education today. Students are able to interact with scientific simulations that would be too dangerous or expensive to use in a classroom. Workers are trained at their own pace in health and safety techniques using videodisc programs, and students in remote areas across the country can take an "interactive video field trip" to the Smithsonian and other museums without ever leaving their classrooms.

Still, the potential of these technologies remains largely untapped. It is the mission of the National Demonstration Lab to increase public awareness of the power of interactive programs and ultimately to help strengthen the nation's educational system. Several NDL outreach activities initiated in 1989 serve this goal.

To fulfill its role as a national clearinghouse, the NDL has begun to compile information for a data base that will be accessible electronically. The data base will include basic information about technologies, a description of successfully developed programs, a bibliography of relevant materials, and a listing of the major players—individual, corporate, and institutional—in the field.

Other outreach activities include the NDL's sponsorship of workshops on intellectual property rights, collection management using interactive technology, and the impact of technology on the future of American education. The NDL's inventory was updated significantly in 1989, with new work stations provided by IBM, AT&T, Commodore, and the Department of Defense. Innovative new programs demonstrated include Cornell University's "Guide to Insects and Culture," ABC News Interactive's "Election '88," a Defense Department foreign language training program, and a new program for the BBC Domesday system, "North Polar Expedition."

The NDL also conducts special demonstrations of unique interactive programs. In July 1989, Secretary of Education Lauro Cavazos visited the NDL for a demonstration of the University of the Air's prototype program, "Life Story."

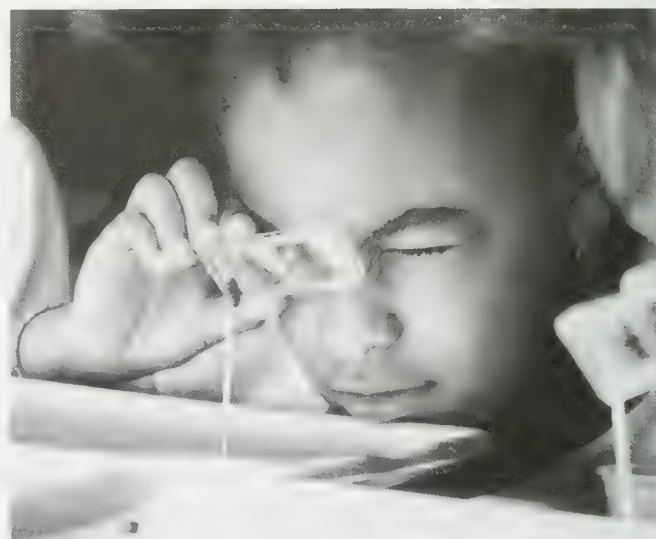
National Science Resources Center

The mandate of the National Science Resources Center (NSRC), sponsored by the Smithsonian Institution and the National Academy of Sciences, is to improve the teaching of science in the nation's schools. NSRC accomplishes this goal by disseminating information about effective science and mathematics teaching resources, developing hands-on curriculum materials, and sponsoring outreach and leadership-development activities.

The NSRC has established as its first priority the improvement of science teaching in elementary schools and has initiated a number of programs in this area. These include

The initiation of a four-year elementary science curriculum project, *Science and Technology for Children* (STC). This project is developing twenty-four hands-on science teaching units for grades one through six on topics in physical science, life science, earth science, and technology. Each STC unit will be field-tested in public school classrooms across the country.

The development of a comprehensive resource collection and computerized data base of information about elementary science curriculum materials from federally supported projects, science museums, and curriculum



Third-grader Marissa Wright uses a hand lens to observe a dried worker bee mounted on a toothpick. This "beestick" will be used to cross-pollinate blossoms as part of the Plant Growth and Development science lessons being developed by the Science and Technology for Children project staff of the National Science Resources Center. (Photograph by Dane Penland)

Office of Elementary and Secondary Education

projects in other countries.

The publication of an annotated elementary science resource guide, *Science for Children: Resources for Teachers*, which is being distributed by the National Academy Press. More than 30,000 copies of the guide are now in use by educators across the country, including the nation's sixteen thousand school superintendents.

The creation of a network of eight thousand scientists and science educators who are working with the NSRC to improve the teaching of science in the nation's schools. The NSRC publishes a newsletter to communicate with network participants.

The development of a program of outreach activities to stimulate public support for the reform of elementary school science education and to enhance local efforts to introduce hands-on science teaching into elementary schools. For example, the NSRC has organized Elementary Science Leadership Institutes to help school systems organize elementary science program improvement efforts.

The NSRC is governed by an advisory board composed of thirty leading scientists, educators, museum administrators, and corporation executives. The NSRC's dual sponsorship by both the Smithsonian and the National Academy of Sciences enables the staff to tap the scientific expertise available in both institutions.

New publications, teacher training programs, special education projects, and internships for precollege young people encompass all the varied ways that the Office of Elementary and Secondary Education (OESE) brings museum resources to teachers and students. Working with other Smithsonian education offices, the OESE helps make museums and their holdings come alive for the educational community.

This year saw a flurry of new publications for children of all ages. Work began on a series of teaching kits designed to bring Smithsonian collections to young adults. These kits, which will be published beginning in 1990 by the Golden Owl Publishing Company and sold to secondary schools, contain artifact reproductions, lesson plans and activities, and audiotapes. The initial series highlights musical instruments and topics in music history. OESE also worked collaboratively with WETA-TV, a Washington, D.C., public television station, to produce teachers' guides to accompany "Smithsonian World" programs.

Making the museum familiar and engaging to younger children and beginning readers is the goal of a projected series of books to be published in colorful, inexpensive formats. For the youngest children, aged four and five, OESE is developing and testing prototype kits that promote multicultural awareness. These materials will be piloted with early childhood programs in North and South America in 1991.

Technology and cultural values is the subject of *Carbons to Computers: The Changing American Office*, a kit published in 1989 with a grant from Brother International, Inc. Designed to give students practice in using museum objects and other primary source materials as research tools, the kit has been distributed on request to five thousand high schools across the country. In response to popular demand, a second printing will soon be initiated.

As part of its outreach effort to disabled visitors, OESE produced a brochure, "A Tour of Works by Deaf Artists," in conjunction with the Office of the Assistant Secretary for Museums in honor of the Deaf Way, an international festival and conference on the language, culture, art, and history of hearing-impaired people. In addition, the office published a monthly pictorial newsletter for mentally retarded adults highlighting Smithsonian events and exhibitions.

OESE's publications for teachers continued to be popular this year, with subscriptions to the quarterly newspaper *Art to Zoo* increasing 60 percent. Teachers were especially enthusiastic about the tropical rainforest issue, which was supported in part by the Smithsonian Tropical Research Institute. *Let's Go to the Smithsonian*, a newsletter for local

Office of Folklife Programs

schools, kept teachers informed about events at the Smithsonian. "Smithsonian Spectrum," a brochure for teachers highlighting Smithsonian-wide school tours and other programming, continued publication. In collaboration with educators throughout the Institution, OESE also published a directory of teachers' resources at the Smithsonian.

Teacher training expanded this year as the office enrolled nearly two hundred teachers nationwide in annual Summer Sessions offered in collaboration with the education departments of various Smithsonian museums. The office's Regional Workshop Program, which fosters more productive relationships between museums and school systems throughout the country, also flourished this year. The program expanded its outreach efforts to schools in Amarillo, Texas; Tallahassee, Florida; St. Louis, Missouri; and Wichita, Kansas. In addition, the program boasts a new brochure and logo and is developing a planning manual for participants that will be published in 1990.

This year's Summer High School Internship Program brought forty-two recent high school graduates to the Institution from around the country to work behind the scenes in the museums and at the Zoo under the guidance of curators and other experts. In addition, the Career Awareness Program introduced ninety Washington, D.C., teenagers to career possibilities at the Smithsonian. The highlight of the program was a student-written magazine on the Smithsonian, published in collaboration with the District of Columbia Public Schools.

The Office of Folklife Programs seeks to encourage continuity, integrity, and equity for traditional cultures in the United States and abroad through a wide range of conservation and representation activities, including scholarly research, professional advocacy, and public programs. Highlights of the year included the mounting of a successful and critically acclaimed Festival of American Folklife, the initiation of a Folklore Summer Institute, the development of a seminal Columbus Quincentenary series of symposia, the winning of a Grammy Award, and the startup of a Smithsonian Folkways Records mail order on-demand cassette operation.

Festival of American Folklife

The twenty-third annual festival was the most extensive and diverse festival since the U.S. bicentennial. Held June 23-27 and June 30-July 4, the festival featured living exhibition programs highlighting the state of Hawaii; oral traditions and crafts of Francophone communities in France and North America; the creolization of Caribbean traditions; and access to cultural, natural, and social resources among American Indian tribes.

The multicultural society of Hawaii was presented by more than 130 Hawaiians and descendants of later immigrants from Japan, Okinawa, China, Portugal, Korea, Samoa, the Philippines, and Puerto Rico, who demonstrated the traditions of boat-making, quilting, the *hula*, the *luau*, the cowboy, and storytelling from the islands. In "Les Fêtes Chez Nous: France and North America," French and French Americans celebrated the bicentennial of the French Revolution and rights to free cultural expression through Cajun music, stepdancing, bagpipes, storytelling, and crafts as practiced by people in western France, Quebec, French New England and Missouri; among Cajun Creoles and Houma Indians in Louisiana; and among the Francophone Mitchif Indians of North Dakota. The American Indian program featured participants from the Iroquois Nation and Yaqui, Washoe, Paiute, Shoshone, Ojibway, and Northern Plains tribes, who demonstrated basket-making, buffalo dancing, deer dancing, wild ricing, and lacrosse playing. Cultural encounters in the Caribbean were presented in a fourth major program, with participants from Puerto Rico, Haiti, Jamaica, and Cuba. Through sacred and secular music, ritual, and foodways, the participants conveyed the persistence of traditional expressions and the creation of new forms from native, European, and African cultures.

Scholars and museologists from ten nations, several U.S.



Hawaii Governor John Waihee (left) greets Wright Bowman, Jr., koa canoe builder from Honolulu, Oahu, on opening day of the Festival of American Folklife. (Photograph by Jeff Tinsley)

arts councils, other festival representatives, and universities came to observe and study the festival as a model of research-based cultural presentation. A recent international conference and critical review identified the festival as a state-of-the-art museological model for the presentation of culture.

Folklife Research

During 1989, scholars conducted studies on the traditions of Afro-Americans in Philadelphia, immigrant cultures from Latin America and Southeast Asia, Navajo music, African epics, Soviet and Soviet American music and folklore, and Caribbean and Brazilian music and culture.

A summer folklore institute for community-based researchers, particularly those from minority groups, was well received. Twelve community scholars worked with museum and academic experts to develop a strategy for studying diverse, grass roots American traditions. The program was endorsed by both the American Folklore Society and the Society for Ethnomusicology.

Dr. Anthony Seeger was awarded the Kinkeldey prize by the American Musicological Society for the best scholarship of the year, based upon his book/recording *Why Suyu Sing*.

Other office researchers held their academic appointments, with Dr. Peter Seitel at the University of Pennsylvania and Dr. Richard Kurin at Johns Hopkins University.

Smithsonian Folkways Records

"Folkways: A Vision Shared," a tribute to Woody Guthrie and Leadbelly produced through Columbia Records, was awarded the 1989 Grammy Award for best traditional recording. An accompanying video produced with Showtime was nominated for an Awards for Cable Excellence award. A new distribution system for Smithsonian Folkways Records is now in place. Rounder Records, Inc., will reissue and distribute the better-selling Folkways titles in multiple formats, often with new cuts and sometimes with new notes. The Office of Folklife Programs will distribute the less popular titles through mail order on a cassette-only basis, manufactured using desktop publishing and its audio equivalent. The complete Folkways catalogue will remain in print and will be available both to the public and to the communities from which the recordings originated.

New Smithsonian Folkways publications this year include "Music of Hawai'i," "Cajun Social Music," "Puerto Rican Music in Hawai'i," "Hawaiian Drum Chants," "Big Bill



The Voudon Group de Madame Nerva from Jacmel, Haiti, performs a voudon ceremony consecrating the altar for the *loa* (spirit) Damballah within the *bounfor*, a ceremonial center, constructed for the Haitian participants in the Festival of American Folklife's Caribbean program. (Photograph by Jeff Tinsley)

Broonzy Sings Folk Songs," and several children's albums by Ella Jenkins.

Special Projects

Two symposia in the Columbus Quincentenary series examined the relationship between expressive culture and economic systems in the New World. "Seeds of the Past," cosponsored with Cornell University, explored indigenous subsistence and cultural systems at the time of the first encounter between Europeans and Americans, how these systems were transformed, and how they persist today. "Seeds of Commerce," held in Santiago de Cuba through La Casa del Caribe, brought together scholars from eight nations to examine the impact of colonial plantation systems on the economic, political, and cultural development of the Caribbean societies. Published volumes in English and in Spanish are planned.

The Smithsonian Folklife Studies (SFS) series released a

documentary film titled "Onggi: Korean Folk Pottery" this year. Other SFS projects initiated included a monograph and recording on ancient and contemporary Hawaiian hula, an edited work on migration lore based upon materials recorded at the 1988 Festival of American Folklife Migration to Washington program, and a film/monograph on religious drama of Afro-Indian goldminers in Colombia.

The festival was featured this year in the "Smithsonian World" program, "The Living Smithsonian." A series of shows on "Radio Smithsonian" followed up with interviews, stories, and music on the themes of the 1988 festival and Folkways projects. *Talking Feet*, a documentary film on Appalachian flat foot dancing and clogging, was released earlier this year in videocassette format.

Office of Interdisciplinary Studies

How can science and technology advance human rights? How do scientific and religious definitions of human beings change over time and influence the recognition and exercise of rights? These and other questions were raised at the tenth international Smithsonian symposium, "Les Droits de l'Homme and Scientific Progress," held October 25-28, 1989. Cosponsored by the National Academy of Sciences and organized in cooperation with the University of Virginia, the symposium was arranged and financed through the efforts of the Office of Interdisciplinary Studies. Cochairmen were Smithsonian Secretary Robert McC. Adams and Frank Press, president of the National Academy of Sciences. The symposium commemorated the bicentennial of the French Revolution, the U.S. Bill of Rights, and the French Declaration of the Rights of Man and of the Citizen. It laid the groundwork for a book of essays to be published by the Smithsonian Institution Press.

More than thirty distinguished French and American scientists and other scholars convened first for sessions at the University of Virginia and later at the National Academy of Sciences in Washington, D.C. Presidents François Mitterrand and George Bush sent messages.

Starting with the intellectual history of the eighteenth century, the symposium continued with sessions on the ethics of biotechnology and on how France, the United States, and other countries might cooperate in the discovery and development of talent in science and engineering. A special focus on future scientific-technological development was found in commentaries by Gene Roddenberry, creator of "Star Trek: The Next Generation," on his television episode, "The Measure of a Man," about a trial held in outer space to determine whether an android has rights. Former Senator Charles Mathias, chairman of the U.S. Committee on the Bicentennial of the French Revolution, concluded with an address on the implications of computer technology.

In addition, the year was marked by vigorous efforts to strengthen learning and research both inside and outside the Institution and to reach new audiences in new forms. One way that the office realized this goal was by publishing, in June, a new brochure, "The Wholeness of Knowledge," which summarizes two decades of efforts to link the sciences and the humanities.

Other major accomplishments of the year included the completion of the richly illustrated book, *Contemporary Indian Tradition*, edited by Carla M. Borden and published by the Smithsonian Institution Press and Oxford University Press in Delhi. An engaging collection of personal essays by

India's leading intellectuals and noted American scholars, it will be one of the lasting rewards of the 1985-1986 Festival of India. In addition, the proceedings of a timely May 1988 colloquium, "Science Education: A Challenge for Excellence in America's Future," were printed, courtesy of Times Mirror, and distributed nationally to schools and science educators at state and local levels. Essays emphasize the need for stronger science and math training in the schools, new approaches to teaching science, and the recruitment of minority and female students into math and science careers.

On May 2, more than two hundred guests attended the premiere screening of *Democracy and Rights: One Citizen's Challenge*, a video documentary for high school students that was jointly produced with the Close Up Foundation. The thirty-minute program explores the role and exercise of individual rights in American government through the story of Ernest Green, one of the nine African American students who integrated Central High School in Little Rock, Arkansas, in 1957. Also featured in the video are Justices William J. Brennan, Jr. and Sandra Day O'Connor, who serves as the narrator. The office and the Close Up Foundation are currently planning a companion video on citizens' responsi-



The May 2 premiere of the documentary "Democracy and Rights" attracted (from left to right) Justice Lewis F. Powell, Jr., Wilton S. Dillon, and Justice Sandra Day O'Connor. (Photograph courtesy of Renee Bouchard, Close Up Foundation)



Speakers at the 1988 world food colloquium "Completing the Food Chain" included (from left to right): John C. Waterlow (Great Britain), Pablo A. Scolnik (United States), Richard R. Harwood (United States), Thomas R. Odhiambo (Kenya), Beatrice L. Rogers (United States), J. E. Dutra de Oliveira (Brazil), Nevin S. Scrimshaw (United States), Sidney W. Mintz (United States), Ricardo Bressani (Guatemala), Anne de Lattre (France), Uma Lele (United States), Aree Valyasevi (Thailand), and Gelia T. Castillo (the Philippines). Missing from the photograph is Mohamed A. Nour (Sudan).

bilities. Both pieces were inspired by the 1987 symposium, "Constitutional Roots, Rights, and Responsibilities" celebrating the bicentennial of the U.S. Constitution.

During Black History Month in February, Radio America aired an eight-part series on the March 1988 symposium "Afro-Americans and the Evolution of a Living Constitution." Distributed free to more than 300 radio stations nationwide, the programs were warmly received and won an award for "outstanding contributions to the enhancement of learning and understanding of the U.S. Constitution and Bill of Rights" from the Bicentennial Leadership Project.

Seminars this year included several lively conversations in the Ways of Knowing series on such topics as "Metascience, Ethnoscience—What Is Science Anyway?" and "Communicating Science: The Phenomenon of the General-Interest

Science Book." Now in its third year, Ways of Knowing is an effort to stimulate the exchange of ideas and information among Smithsonian staff and Fellows.

Organized in conjunction with the presentation of the World Food Prize, the second colloquium on world food issues was titled "Completing the Food Chain: Strategies to Combat Hunger and Malnutrition." Convening at the Smithsonian and at the International Food Policy Research Institute on October 4–5, 120 specialists from universities, industry, and government in the United States and abroad probed the lessons of the "green revolution," as well as leading food and agriculture issues in Asia, Africa, and Latin America, paying special attention to new food and biogenetic technologies that could boost future food production. The proceedings of the colloquium were published in September.

Office of Public Affairs

Actors Pat Morita and Robert Redford journeyed, on separate occasions, to the Institution this year to help publicize cultural and environmental diversity, two aspects of the "Smithsonian story" that the Office of Public Affairs emphasized throughout the year. The office helps print and broadcast journalists tell the Smithsonian story through news releases, backgrounders, publications, photographs, videotapes, logistical support, public service announcements, and advertising. The office also oversees Institution-wide information and advertising programs.

Morita was filmed with twenty children from diverse ethnic and cultural communities for a public service announcement on the theme "The Smithsonian Is for Everybody." Released to television stations in the summer of 1989, the announcement was very well received by stations around the nation. A backlit poster using a photograph from the production was prepared for the Metrorail system in Washington, D.C.

Redford recorded a public service announcement focusing on the Smithsonian's involvement in environmental research and conservation. Scheduled for release in early 1990, it is the first television announcement to focus on science projects at the Smithsonian.

Other television announcements produced by the office included one highlighting multicultural aspects of Smithsonian museums, complemented by posters on Metrobus exteriors, and the "Caribbean Festival Arts" exhibition, accompanied by backlit Metrorail posters.

The office continued in its support of the Institution's commitment to reaching a more diverse audience, devoting approximately half of its resources to this enterprise. A major Smithsonian goal is to reach African American, Hispanic American, Asian American, and Native American communities. With this goal in mind, the office launched its Native American Media Outreach Program with its first intern, a Seneca Indian, supported by the Smithsonian Educational Outreach Program. The intern helped the Smithsonian introduce itself to more than four hundred publications and a network of Native American media professionals from tribes across the country. Other accomplishments of the program were a traveling exhibit, an advertisement for the National Indian Education Association conference brochure, and the prototype of a quarterly newsletter for Native American readers.

The office's Black Media Outreach Program expanded its radio advertising this year. Radio commercials were aired in October, February, and September. The Black History Month

commercials, which offered information packets that included a Metrorail fare card, prompted 2,700 calls from radio listeners—more than double the number received the previous year. To assist the Office of Equal Opportunity, the office prepared recruitment advertisements featuring prominent African Americans on the Smithsonian staff for use in various publications.

As part of its Hispanic Media Outreach Program, the office, in conjunction with others at the Institution, coordinated an exhibit, a reception, a full-page conference-booklet advertisement, and Secretary Adams's keynote address for the Seventh Annual National Hispanic Media Conference in Puerto Rico. Twelve hundred reporters attended the conference. The office also organized a news media briefing on the signing of the contract for the Columbus Quincentenary television series, "The Buried Mirror," and prepared an extensive publicity campaign involving newspaper and radio advertisements in Spanish for Hispanic Heritage Month.

A number of special publications were produced this year, including a flyer on resources for children, which was distributed at a Congressional Black Caucus Foundation meeting. *Research Reports*, an award-winning publication published three times a year, will begin appearing four times a year and will sport a new look and some new features—the result of a readership survey. The employee newspaper, *The Torch*, received several awards as it continued to publish quality information. In all, the office received twelve awards for publication excellence. The Smithsonian News Service, a syndicated feature-story service that serves hundreds of newspapers nationally, was also honored.

During the year, the office responded to well over seven hundred inquiries from reporters, initiated dozens of media proposals, and edited and distributed 550 news releases. The office organized major publicity campaigns for the "Caribbean Festival Arts" exhibition; the Forum for Global Change and Our Common Environment; an exhibition on the evolution of tropical biology in Panama and one on African American inventors; a media conference on the global environment; the opening of the Archives of American Art's new offices; the dedication of the new Mathias Laboratory; introduction of the historic furniture collection; and an exhibition of the French Declaration of the Rights of Man and of the Citizen.

One of the major events of the year was a nationally covered May 8 press conference at which Secretary Adams signed an agreement with the Museum of the American Indian, Heye Foundation, in New York City to transfer its

extensive collections to the Smithsonian. As media interest focused throughout the year on the Smithsonian's Native American collections, the office responded to hundreds of requests for information.

In 1989, the Office of Telecommunications produced a record number of media programs, ranging from state-of-the-art interactive videodiscs for museum use to television and radio programs for national broadcast. These quality programs, produced in collaboration with Smithsonian scientists, historians, and curators, present the full range of Smithsonian research and exhibition activities to the public. Moreover, the diversity of projects in 1989 reflects the office's ability to use electronic media creatively to reach wider audiences. The office's productions received more awards and recognition in 1989 for technical excellence and program quality than in any previous year.

Several significant video and film projects were completed in 1989. One of the video projects, produced for the new Smithsonian Information Center in the Great Hall of the Castle, is an interactive videodisc program providing visitors with detailed information about each museum and its collections, tours, special attractions for children, and restaurants. This interactive program, one of the most extensive developed for museum use, is an innovative way to convey information to museum visitors. It is programmed in seven languages and can be updated by staff as museum information changes. In addition, a twenty-minute orientation program to the Smithsonian was produced by the office to run continuously in two theaters.

A major one-hour film titled "The Earth in Our Hands," narrated by Robert Redford and designed for PBS broadcast in this country, for foreign broadcast, and for educational distribution, was completed in September. This unique film follows the laboratory and field staff of the Smithsonian's Marine Systems Laboratory and Arizona's Space Biosphere Ventures as they work with a cadre of dedicated scientists, architects, engineers, and builders in their attempt to create Biosphere II, an experimental model of the Earth's ecosystems. The film shows an extraordinary effort being extended to bring global ecological problems into the realm of experimental science and reflects the significant role the Smithsonian is playing in addressing a critical scientific issue.

As part of its effort to reach new audiences, the office completed a pilot project designed for the nation's growing Spanish-speaking population. The pilot, "Descubra el Smithsonian," is a series of two-minute features exploring Smithsonian museums, galleries, research, and performances. Designed for commercial television, the pilot debuted at the National Hispanic Media Conference in April to excellent reviews. The office is currently seeking funding to develop the project into the Smithsonian's first Spanish-language



Lee Cioffi (far right), Office of Telecommunications producer/director of the new Smithsonian Information Center's orientation program, directs a camera crew in a video segment shot at the Hirshhorn Museum. (Photograph by Jeff Tinsley)

television programming effort. Additional programming for Spanish-speaking audiences is also being planned.

A unique home video series for a general audience, called the Smithsonian Video Collection, is the Institution's first venture for the expanding home market. In collaboration with Eastman Kodak Co., the project completed five programs available for purchase: "The Zoo behind the Zoo," "The Flying Machines," "Dinosaurs/Insects," "Gems and Minerals," and "The First Ladies." "Supertour," a comprehensive tour of Smithsonian museums, was scheduled to be released at the end of 1989.

The office continued to produce two ongoing program series broadcast in the United States and abroad. "Here at the Smithsonian," an award-winning series of short features for television, launched its eighth season on PBS with 180 subscribing stations, including stations in seven of the top ten cities in the country. "Radio Smithsonian," a weekly half-hour series, is carried by ninety National Public Radio affiliates nationally, reaching a potential weekly listening



Office of Telecommunications Deputy Director Karen Loveland (right), producer/director of *The Earth in Our Hands*, discusses a scene with narrator Robert Redford (left) in the living Everglades ecosystem created by the Smithsonian's Marine Systems Laboratory. (Photograph by Richard Hofmeister)

audience of four million people. Programs in both series focus on exhibitions, research, and performance activities throughout the Institution.

The office also provides video and film production services for museum and traveling exhibitions. Completed programs for 1989 included nine short films on the role of towboats on the Mississippi River for the Maritime Hall of the National Museum of American History (NMAH); three videos for the NMAH exhibition "Men and Women: A History of Costume, Gender and Power"; a video, "Moving America's Mail," for the NMAH National Philatelic Collection exhibition; an interactive videodisc to accompany an exhibition on Duke Ellington for the NMAH Division of Musical History; a film to accompany the Smithsonian Institution Traveling Exhibition Service's Frank Lloyd Wright exhibition; and an interactive videodisc to enrich an exhibition of abstract art from the Patricia and Philip Frost Collection at the National Museum of American Art.

Smithsonian Institution Press

The Smithsonian Institution Press, the publishing center of the Smithsonian, produces a wide range of books in many fields of interest. This year's list was marked by a record number of nearly eighty-five books published in the fields of art, science, anthropology, archaeology, aviation, and history.

Manuscripts on a wide range of subjects are acquired from Smithsonian staff and from institutions and individuals throughout the world. Publications include research monographs, technical and scientific series, exhibition catalogues for Smithsonian museums, informational and educational pamphlets, as well as trade books, sound recordings, and archival videodiscs.

University Press Division

Many of the books published by the General Publications section received attention in both the general and the scholarly media. This year's most notable titles include *Women of Deh Koh: Lives in an Iranian Village*, by Erika Friedl; *The Recovery of Meaning: Historical Archaeology in the Eastern United States*, by Mark P. Leone and Parker B. Potter; and *Men and Women: Dressing the Part*, by Claudia Brush Kidwell and Valerie Steele.

This year, Smithsonian Press published *Just before Jazz: Black Musical Theater in New York, 1890 to 1915*, by Thomas L. Riis. The volume, which marks a renewed emphasis on the history of music and musicians, is illustrated with photographs, sheet-music facsimiles, musical examples, and newspaper reviews.

The University Press Division has recently announced a new series, the Smithsonian History of Aviation. The lead title published this year is *Strike from the Sky: The History of Battlefield Air Attack, 1911-1945*, by Richard P. Hallion. Other aviation titles published include *Combat Flying Equipment: U.S. Army Aviators' Personal Equipment, 1917-1945*, by C. G. Sweeting; *Cierva Autogiros: The Development of Rotary-Wing Flight*, by Peter W. Brooks; and (new in paperback) *A Dream of Wings*, by Tom D. Crouch.

The Smithsonian Series in Archaeological Inquiry was enhanced this year by the publication of *A Late Pleistocene Settlement in Chile*, by Tom D. Dillehay. The first of two volumes, the book reports on evidence of human habitation in the ancient site of Monte Verde. Off the press at almost the same time was the first volume of David Hurst Thomas's three-volume Columbus Quincentenary series on the Span-

ish Borderlands (the northern rim of New Spain), *Columbian Consequences: Archaeological and Historical Perspectives on the Spanish Borderlands West*. Volumes published in the Smithsonian Series in Ethnographic Inquiry include *Pilgrims of Paradox: Calvinism and Experience among the Primitive Baptists of the Blue Ridge*, by James L. Peacock and Ruel W. Tyson, Jr., and *Ritual Passage, Sacred Journey: The Form, Process, and Organization of Religious Movement*, by Richard Werbner.

Smithsonian Press published several books in the natural sciences this year, including *Sharks in Question: The Smithsonian Answer Book*, by Victor G. Springer and Joy P. Gold; *Turtles of the World*, by Carl H. Ernst and Roger W. Barbour; *Marine Plants of the Caribbean: A Field Guide from Florida to Brazil*, by Diane and Mark Littler et al.; and *The Restless Sun*, by Donat G. Wentzel.

In the area of visual arts, Smithsonian Press published for and with many different museums, as well as its own series. Working with the Museum of Fine Arts in Houston, Texas, the Press copublished *The Intimate Interiors of Edouard Vuillard*, by Elizabeth Wynne Easton. *Albert Pinkham Ryder*, by Elizabeth Broun, was copublished with the National Museum of American Art, and *Tropical Renaissance: North American Artists Exploring Latin America, 1839-1879*, by Katherine Emma Manthorne, was published by Smithsonian Press in the New Directions in American Art series.

The Series section of the University Press Division publishes the federally funded Contributions and Studies, consisting of nine series of monographs that report the research of Smithsonian staff. All of the editing, design, and typesetting for these publications is accomplished on Smithsonian Press computers.

Among the twenty-nine publications in these series during 1989 were *The Great Tzotzil Dictionary of Santo Domingo Zinacantan with Grammatical Analysis and Historical Commentary*, by Robert M. Laughlin with John B. Haviland (Smithsonian Contributions to Anthropology, no. 31); *A Bibliography of Plant Collectors: Bolivia*, by V. A. Funk and Scott A. Mori (Smithsonian Contributions to Botany, no. 70); *Seagrasses*, by Ronald C. Phillips and Ernani Menez (Smithsonian Contributions to the Marine Sciences, no. 34); *The Autochthonous North American Musk Oxen . . .*, by Jerry McDonald and Clayton E. Ray (Smithsonian Contributions to Paleobiology, no. 66); and *Technology in Miniature: American Textile Patent Models in 1819-1840*, by Barbara Suit Janssen (Smithsonian Studies in History and Technology, no. 49).

Smithsonian Collection of Recordings

The Recordings Division produced and released four new albums under the Smithsonian Collection of Recordings (SCR) label, each with extensive liner notes in an accompanying book. The most popular of these, *American Musical Theater*, includes six records, four compact discs, or four cassettes. The album surveys the history of the musical theater from its roots in the nineteenth century to 1964. The album is distributed through direct mail to Smithsonian Associates and through retail outlets all over the country. Reviewers have praised the effort in many popular magazines, including *Newsweek*, *Audio*, and *People*.

Another major package released this year was *Jazz Piano*, which also has been recorded on six records, four compact discs, or four cassettes. This album, programmed by Smithsonian jazz expert Martin Williams, is a presentation of the diverse styles of jazz piano. The collection includes sixty-eight selections.

Two single compact discs were released in the Instruments of the Smithsonian series: *Beethoven: The Two Piano Trios of Op. 70*, performed by the Castle Trio, and *Corelli: The Twelve Trio Sonatas of Op. 3*, by the Smithsonian Chamber Players. Both include extensive notes about the instruments from the collection.

Smithsonian Books

Smithsonian Books, a division of the Smithsonian Institution Press, publishes books for a general audience on subjects that relate to Smithsonian collections and research interests. Highlights of the year include *Images of America: A Panorama of History in Photographs*, which commemorated the 150th anniversary of photography, and *Lords of the Air: The Smithsonian Book of Birds*. Other recent accomplishments include *In the Age of Mankind: A Smithsonian Book of Human Evolution*, a continuity series; the twelve-volume *Smithsonian Guide to Historic America*; and a sixty-minute video titled *The Magnificent Whales*.

Book Development

Now in its second year, the Book Development Division continued to expand its list of general titles for the museum visitor. During the fall and spring seasons, four postcard

books were published and five new ones developed. The latest additions to this popular series feature highlights of the collections of the Hirshhorn Museum and Sculpture Garden, the National Museum of American Art, and the National Museum of American History. A second group features historical graphics selected from the Warshaw Collection of Business Americana at the National Museum of American History. Although originally intended for sale through the museum shops, the fifteen-title series is beginning to attract trade sales in the United States and abroad.

With the publication of *The National Air and Space Museum: A Visit in Pictures*, by National Air and Space Museum Deputy Director Donald Lopez, the division launched a new series of books that captures the high points of individual museums in a large-format, pictorial overview. In addition, the three individual guidebooks produced by the Book Development program last year continue to enjoy a very strong reception.

The Book Development Division also is working to establish a children's publishing program at the Press. Together with experts in children's literature at the Library of Congress and the American Library Association, the division is currently refining a forty-title fiction reprint series for direct-mail testing. The goal of the series is to encourage parents to build a home library of twentieth-century American children's literature with broad, multicultural appeal.

The Smithsonian Internship Council monitors internship programs throughout the Institution. This year's primary goal was to increase the awareness of minorities at colleges and universities about internship opportunities at the Smithsonian. As part of this effort, the council met with the Dean of the Office of Afro-American Affairs at the University of Virginia, Charlottesville (UVA) and explored ways to establish relationships and identify Smithsonian resources for UVA's African American students. The dean extended an invitation to the council to meet with the president and other administrators at UVA to further this relationship.

In further efforts to reach out to minority audiences, council members visited four traditionally black campuses and three other campuses with a substantial minority enrollment in Virginia, as well as several traditionally black campuses in Maryland and the District of Columbia.

As an ongoing effort to stay abreast of high school, college, and university internship programs, coordinators have been invited to give an update of their programs before the council. As a result, the council has been briefed about programs at American University, Gallaudet University, the Washington Center Program, and Tall Oaks Vocational High School in Bowie, Maryland. The council also standardized an intern application form to be used by all bureaus.

Smithsonian magazine continued to provide up-to-date, interesting coverage of museum events. Circulation increased this year, making this publication among the most important museum-affiliated magazines in the world.

One of the editorial highlights of the year was a two-part series on the Gulf Stream. This project, which originated with the magazine and became both a book and a PBS documentary, took author Bill MacLeish two years to complete. Spanning twenty-eight pages of the magazine and illustrated with a combination of photographs, maps, and graphics, the series covered the history of the Gulf Stream and its impact on politics and settlement patterns, as well as current efforts by oceanographers to learn more about the Gulf Stream in relation to weather and climate.

A major exhibition of the work of Thomas Hart Benton at the Nelson-Atkins Museum in Kansas City gave *Smithsonian* a perfect opportunity to produce gatefold illustrations of Benton's murals, which accompanied an insightful piece by Verlyn Klinkenborg.

In the sciences, *Smithsonian* produced an impressive piece about current research on galaxies. Physicist James Trefil described recent discoveries as part of a larger story about galaxies and the history of our understanding of them. This kind of story—in which current news is presented within the context of a larger and more general background—is among the things that *Smithsonian* does best.

Other stories in the sciences that *Smithsonian* published this year included a profile of ethnobotanist Mark Plotkin and his work in Amazonia, a story on quartz, one on research in biomechanics, and another on the innovative ideas of biomedical researchers Candace Pert and Lynn Margulis.

The magazine covered institutional activities both in Ted Park's "Mall" column and in the "Highlights" section. In addition, the magazine started a new column, "The Object at Hand," which features objects from the museums' collections. This column will run on an occasional basis.

The centennial of the National Zoo was a perfect time for a cover story on the Zoo that included a look back at its history and a look forward to its future. Other important cover stories of the year included one on the "Crossroads of Continents" exhibition and one on the Vever exhibition, which coincided with its showing at the Sackler. Of special note was the cover story on the Dust Bowl, which displayed some of the great photographs of the Farm Security Administration. This story was particularly timely, because of concern about the possibility of global warming and the serious droughts that it could bring.

Smithsonian



In a historic Dorothea Lange photograph, a homeless Oklahoma family walks a long, hard road during Dust Bowl days (p. 36)

This striking *Smithsonian* magazine cover featured a historic Dorothea Lange photograph of a homeless Oklahoma family walking a long, hard road during Dust Bowl days.

Stories in the arts this year included coverage of African American photographer/filmmaker/novelist Gordon Parks, Degas, the Walters Gallery in Baltimore, and the kinetic sculptures of George Rhodes.

This year also brought a joint project with the School of Continuing Education at Howard University to enhance careers for minorities in magazine publishing procedures. Thirty young professionals gathered from across the nation June 25 to July 2 to learn about the fundamentals of magazine editing, advertising sales, circulation sales, manufacturing, and business plans. The courses were conducted by sixty professionals from the field.

Participants came from *Ebony*, *Changing Times*, *Black Collegian*, *National Geographic*, *Essence*, the Hearst Publications, Rodale, Meredith, Crain Publishing, *Reader's Digest*, and other magazines. The Magazine Publishers Association, on whose board *Smithsonian* is represented, also helped with the project.

"Smithsonian World"

"Smithsonian World," the critically acclaimed prime-time television series coproduced by the Institution and WETA-TV in Washington, D.C., launched its fourth season in the fall. The season's first program about the many exciting facets of the world's largest museum and research complex, the award-winning "The Living Smithsonian," premiered at a reception at "The Material World" exhibition at the National Museum of American History. The event was hosted by the sole corporate underwriter of the series, Southwestern Bell Corporation.

The fourth season's five one-hour specials, broadcast nationally on PBS in October 1988 through March 1989, included "American Dream at Groton," which won a CINE Golden Eagle Award and an American Film Festival Ribbon; "The Way We Wear"; "Web of Life"; and "The Vever Affair."

In tandem with these original broadcasts, Southwestern Bell Corporation underwrote a major advertising and promotion campaign, with award-winning four-color advertisements for each program featured in the *Atlantic*, *TV Guide*, *Forbes*, *Harper's*, *Natural History*, *American Heritage*, the *New York Times Magazine*, *Smithsonian* magazine, and the metro editions of *Newsweek* and *Time*.

As part of "Smithsonian World's" Summer Encore Season, the ten programs from its third and fourth seasons were aired nationally on PBS from July through September 1989, with advertising in major print publications.

Under Executive Producer Adrian Malone, production for season five began in the spring of 1989. In the five programs scheduled to be broadcast in 1990, "Smithsonian World" will continue to examine unique ideas and concepts in collaboration with the Institution's National Zoological Park, the National Museum of African Art, the Smithsonian Astrophysical Observatory, the National Museum of Natural History, and the National Museum of American History.

Visitor Information and Associates' Reception Center

The Visitor Information and Associates' Reception Center (VIARC) is responsible for a range of centralized Institution-wide information and assistance programs for the public, Associate members, Smithsonian staff, interns, and volunteers. Operating seven days a week, many VIARC programs involve the coordination and direction of large numbers of volunteers. Daily services include staffing sixteen information desks in eleven buildings and two Associates reception desks, answering the Institution's public telephone lines, and providing twenty-four-hour recorded information on Dial-a-Museum and Dial-a-Phenomenon. In addition, VIARC responds to the Institution's public mail, handles the recruitment and placement of volunteers behind the scenes, operates an outreach program to promote membership and previsit education, and administers the Institution's exterior graphic information system.

Renovation, construction, and program activities for the new Smithsonian Information Center in the Castle were completed this year; however, the official opening of the center was delayed to accommodate a major but unrelated renovation project—the replacement of all windows in the public areas of the building.

VIARC's exterior graphic information system progressed with the installation of directional signs to the Anacostia Museum and the completion of a joint project with the National Park Service—the installation of redesigned, updated, and refurbished general information directories within monumental cores. In addition, VIARC's seasonal outdoor information pylons were updated and in place for year-round use.

The Public Inquiry Mail Service received and processed more than 57,000 pieces of mail in 1989 and distributed 3,500 information packets in conjunction with the Smithsonian's efforts to broaden its minority constituency. The Telephone Information Service handled more than 420,000 calls during the year. The Resident Associate Program's Kite Festival, the Washington Craft Show, Black History Month, and the National Air and Space Museum's "Wings and Things" and Lunar Landing Party generated a peak volume of several thousand calls each day. VIARC provided comprehensive recorded information about Smithsonian activities during the Festival of American Folklife, Black History Month, Asian Pacific American Heritage Week, and Hispanic Heritage Month. Dial-a-Phenomenon, the popular recording on short-lived celestial events, attracted some 44,000 calls.

The Seven-Day Information Service Unit increased the volunteer information specialist corps to well over six hun-

dred in anticipation of staffing needs for the new Smithsonian Information Center. Approximately 12 percent of these volunteers represent minority constituencies. Volunteers extended coverage at information desks at three museums—the National Museum of American History, the National Museum of Natural History, and the National Air and Space Museum—to accommodate an experiment with 9:30 a.m. openings during the summer. Volunteer information specialists also assisted with the Hispanic Festival on the Washington Monument grounds, with Caribbean Festival Family Days, and, during extended evening hours, for Inauguration Day and the Lunar Landing celebration.

Some 1,700 behind-the-scenes volunteers were active during the year providing short- and long-term assistance on special projects, including the translation of 168 documents for Smithsonian departments and divisions. Owing to the lack of staff space, several VIARC programs—the Special Magazine Files and Intern Services—were transferred to other Smithsonian offices, and the 1989 summer Mobile Information Program was canceled.

The Information Resource Division completed thirty-seven printed pieces, produced Institution-wide exhibition directories and calendars, and, along with the Office of Public Affairs, reviewed the visitor-oriented publications of other Smithsonian bureaus. A major publication, *Guide to the Nation's Capital and the Smithsonian Institution*, was updated and now includes a newly scribed map of the Washington area.

VIARC's annual Institution-wide volunteer survey documented that 5,252 volunteers contributed 468,099 hours of service during 1989.

University of the Air

Smithsonian University of the Air (formerly Project Discovery) was established in 1986 by the Smithsonian Institution and television producer Adrian Malone to create a new, integrated, multimedia curriculum on the history of ideas of the twentieth century. The goal of the project is to have a positive influence on the quality of education in the United States by integrating high-caliber broadcast television dramas and documentaries, books, and interactive multimedia computer programs and videodiscs.

The television programs will dramatize the lives of twentieth-century intellectual and cultural leaders and link those lives by documentary series hosted by the great teachers of our time. Together, the dramas and documentaries will offer viewers the best attributes of each: dramatic and vital people, and ideas brought to life by artifacts, place, and time. Smithsonian's University of the Air will use books, learning guides, and the latest technology—interactive videodiscs—to encourage each student to take his or her own path. Students will be able to experience the excitement of discovery, the drama of human stories, the context of time and place, and that old-fashioned aim of classical education—synthesis.

By 1991, Smithsonian's University of the Air intends to have completed four dramas (on Albert Einstein, Werner Heisenberg, Nadia Boulanger, and John Maynard Keynes) that will make up one eight-part documentary series and will be accompanied by computer programs, videodiscs, and books.

University of the Air has established cooperative relationships with Apple Computer to complete the prototype interactive multimedia disc and is seeking a broadcast or computer industry partner for other support. The project is also working with other offices at the Institution, including the Resident Associate Program, Smithsonian Institution Press, and the National Demonstration Laboratory.

EXTERNAL AFFAIRS

Thomas E. Lovejoy, Assistant Secretary for External Affairs

Office of Membership and Development

This has been a year of planning and reorganization for the Office of Membership and Development, which is charged with the task of carrying out fund-raising activities and assisting individual bureaus in their development projects. The arrival of Thomas McCance, Jr., as deputy assistant secretary for external affairs/director of membership and development coincided with the beginning of the fiscal year. Shortly afterward, the office began an extensive study geared toward both improving its capacity and efficiency through internal expansion and selecting a new information management system to support research, communications, and record-keeping.

The reorganization creates within the office giving centers for corporations, foundations, and individuals. Each center is staffed by teams of people who specialize in that area of philanthropic activity. A development services center will focus on providing support to each bureau and office in the Institution. These changes will enable the office to better address both Institution-wide priorities and bureau funding needs. A comprehensive plan for producing development-related publications, including a Smithsonian-wide case statement, fund-raising brochures, and newsletters was also initiated.

A number of new membership initiatives have also been started. Many friends of the Institution agreed to join the Secretary's Circle, which is working to expand the James Smithson Society, the highest level of the Contributing Membership Program. A new membership group for people interested in supporting the Smithsonian at levels above the Smithson Society also is being planned. In addition, the office has joined with the National Associate Program in planning a corporate membership program and is exploring still other vehicles for creating and nourishing relationships with our national constituencies.

The Institution received more than \$5 million in bequests during 1989, including the major gift of Franz H. Denghausen of Massachusetts, which will create an endowment fund in his and Luisita L. Denghausen's names to support work in American art. Other major gifts-by-bequest received include those from the estates of Roy R. Phillips, Laura I. O'Dea, Dorothy B. Koteen, John S. Thacher, and Charles H. Ettl. The planned giving program has worked this year to create new bequest vehicles to fit the interests of Associates and other friends. For example, the newly established Global Environmental Endowment Fund will support research, conservation, training, and public education in global environmental studies.

Global environmental activities were also the focus of the office's initial efforts to identify broad, multibureau clusters of funding needs. It is expected that the combined efforts of the many Smithsonian researchers active in this field will continue to attract the support of corporations and foundations.

This year, the Smithsonian has received a great number of important gifts and pledges in addition to those bequests already mentioned. Some of these gifts and pledges are described below; a more complete list of donors appears in the "Benefactors" section of *Smithsonian Year*.

The Pew Charitable Trusts made three grants exceeding \$1 million to be used for planning a major exhibition on global environmental change; for completing the Philadelphia collecting project of the Archives of American Art; and to the National Institute for the Conservation of Cultural Property for "Save Our Sculpture!" a national inventory of American sculpture being carried out in conjunction with the National Museum of American Art.

The Andrew W. Mellon Foundation awarded two grants: for work on the structure and evolution of terrestrial ecosystems in concert with university researchers and for the Minimum Critical Size of Ecosystems project in the Amazon basin. The first project will permit the regular exchange of scientists between the Smithsonian and American universities. The second project is a long-term study to determine the size of undisturbed land areas necessary to preserve tropical forest animal and plant species from extinction.

The Burch Heart Research and Education Fund has created the George E. Burch Fellowships in theoretical medicine and affiliated theoretical sciences at the Smithsonian. The fellowships will provide selected scholars access to the many resources at the Smithsonian and a year to study the theory and role of medicine and other scientific disciplines in modern society.

The Columbus Quincentenary programs of the Smithsonian received a major boost with the signing in June of an agreement with Spanish investors under the Sogotel organization to back the production of the "Buried Mirror" television series. Other efforts to organize support for this massive effort to commemorate the 500 years of interaction between Old and New Worlds have accelerated during 1989.

Another anniversary—that of the bicentennial of the French Revolution—was commemorated with major underwriting from the American Committee on the French Revolution, as well as from the Grand Marnier Foundation and the Florence Gould Foundation. Air France made possible a splendid

occasion to celebrate the shared democratic traditions of the United States and France by flying a joint delegation from Paris to Washington on a Concorde aircraft, pledging one of these aircraft to the National Air and Space Museum.

A number of exhibitions received important support during the year. The National Air and Space Museum received funding for its exhibition "Beyond the Limits," which explores the applications of computers to flight. The National Museum of American History has secured funding from dozens of corporations in the communications industry for its upcoming treatment of information technology in an exhibition called "Information Age." Similarly, the gem and mineral industry is being approached to underwrite the planned renovation of the permanent gem and mineral hall at the National Museum of Natural History.

The art museums also received generous corporate and foundation support. The Shell Oil Foundation cosponsored "Courts and Colonies: The William and Mary Style in Holland, England, and America," a show about the era of William and Mary, at the Cooper-Hewitt Museum. Tiffany and Company made possible a major exhibition on Tiffany masterworks at the Renwick Gallery of the National Museum of American Art. United Technologies Corporation made possible an exhibition at the Sackler Gallery of the works of Chinese artist prodigy Wang Yani. U.S. Air has agreed to underwrite the upcoming exhibition of Irving Penn's works being planned jointly by the National Museum of American Art and the National Portrait Gallery. The latter also acquired an important portrait of educator Bishop George Berkeley with the assistance of the Morris and Gwendolyn Cafritz Foundation.

The Institution was saddened by the death of Mrs. Cafritz last winter; her generosity both to Smithsonian's museums and programs and to the city of Washington, D.C., will be long remembered.

National Board of the Smithsonian Associates

The National Board of the Smithsonian Associates was established to bring the Institution into closer association with corporate, professional, community, and cultural leaders from throughout the country. The Institution looks to the National Board for guidance in stimulating appropriate forms of cooperation among these sectors and for assistance with regional Smithsonian activities, educational services, and private support for these and other programs.

At a spring meeting in Jackson, Mississippi, Secretary

Adams reviewed his five years on the job and briefed the board on the latest developments at the Institution. Board member Charles Kemp was host for the weekend, which included dinner at the governor's mansion, a trip to the Vicksburg battlefields, a tour of antebellum homes in Natchez, and dinner with some of Jackson's leading citizens at the Mississippi Museum of Art.

Seven new members were elected to the National Board: Charles L. Brown of New Jersey; Ivan Chermayeff of New York; Thomas G. Cousins of Georgia; Joan Dillon (Mrs. George C.) of Missouri; Alvin Puryear of New York; Jill Sackler (Mrs. Arthur M.) of New York; and Dr. Ivan Selin of Washington, D.C. The three retiring board members were William W. Boeschstein of Ohio; James H. Clement of Texas; and Marshall Field of Illinois.

As part of the Smithsonian's increased interest in the environment, several board members joined Thomas E. Lovejoy, assistant secretary for external affairs and a tropical biologist, for a two-week spring study tour of the rainforests of Brazil.

Following custom, the National Board's autumn meeting was held in Washington, D.C. At the Friday, September 22, session, members and their spouses heard the Smithsonian's six assistant secretaries discuss their respective areas of responsibility. In the afternoon, board members were given an introductory tour of the new Smithsonian Information Center in the Castle. The annual National Board-James Smithson Society dinner was held in the National Museum of African Art and the S. Dillon Ripley Center that evening. On Saturday, September 23, Secretary Adams and Treasurer Ann Leven gave the members an update on the Institution and its finances. Chief Justice William Rehnquist, who is also chancellor of the Smithsonian, and his wife joined past, active, and honorary board members for dinner Saturday evening in the Arts and Industries Building.

James Smithson Society

The James Smithson Society was founded in 1977 as the highest level of the Contributing Membership of the Smithsonian National Associate Program. Since then, the society has awarded more than \$2,700,000 in support of Smithsonian projects and acquisitions. Through the contribution of the Annual Members, this year the society made grants totaling \$409,460. The many projects benefiting from these awards are listed below.

The Smithson Society's Annual Weekend was held Sep-

tember 22-23 in conjunction with the fall meeting of the National Board of the Smithsonian Associates. Secretary Adams welcomed the group at a formal dinner on Friday, September 22, in the National Museum of African Art and the S. Dillon Ripley Center. Later the same evening, Gay F. Wray, chairman of the National Board, announced the projects receiving 1989 Smithsonian Society grants and awarded the society's Founder Medal to Mercer Ellington for his donation of the Duke Ellington Collection to the National Museum of American History. Jimmy McPhail, a vocalist with the Duke Ellington Band, accepted the award on behalf of Mercer Ellington, who was unable to attend.

Saturday morning at the National Museum of American Art, society members and spouses of National Board members were given a special presentation and tour of "The Patricia and Phillip Frost Collection: American Abstraction, 1930-1945," led by Virginia M. Mecklenburg, chief curator.

After the tour, members previewed the museum's Conservation Laboratory and then proceeded to the Smithsonian Castle for a luncheon held in the Commons. Members visited the new Smithsonian Information Center following lunch.

This year, the James Smithsonian Society awarded grants to support the following projects:

National Museum of African Art: To acquire a utilitarian collection from East and Southern Africa.

National Museum of American Art: To support the exhibition, "Treasures of American Folk Art from the Abby Aldrich Rockefeller Folk Art Center."

National Museum of American History: To acquire and organize the Zimmerman World's Fair Collection and staff research of "An Oral History of Southern Agriculture."

Cooper-Hewitt Museum: To underwrite the production of a color brochure about the museum.

National Air and Space Museum: To conserve selected archival aerospace films and videotapes.

Conservation Analytical Laboratory: To support an autoradiography facility for art conservation and research.

National Portrait Gallery: To acquire a portfolio of photographic prints by Richard Avedon.

Arthur M. Sackler Gallery: To restore Whistler's Peacock Room.

National Museum of Natural History: To support a symposium in conjunction with the exhibiton, "Nomads: Masters of the Eurasian Steppe."

National Zoological Park: To develop and establish a worldwide electronic bulletin board for international conservation programs at the Zoo's Conservation and Research Center.

Office of Public Affairs: To print a new publication on behind-the-scenes research at the Institution.

Women's Committee of the Smithsonian Associates

The Women's Committee of the Smithsonian Associates continued its support and advancement of Smithsonian interests through fund-raising events and special project awards. Its sixty-three active members and seventy-five resource members contributed more than seven thousand volunteer hours to the Institution. Net proceeds from the 1988 Washington Craft Show and the annual Christmas Dinner Dance enabled the committee to award forty-four grants totaling \$156,477 to twenty museums and bureaus. Projects were supported in amounts from \$350 to \$8,000. The committee also made an additional commitment of \$20,000 to the Women's Committee Endowment Fund.

The inherent variety of the Smithsonian Institution is reflected in even a partial list of the educational and research projects funded by the Women's Committee. Awards were given for workshops titled the "History of the Space Shuttle"; scholarships for minority participants in seminars sponsored by the Smithsonian Lecture and Seminar Program; a family- and group-oriented guide to the Hirshhorn Museum; and the organization and preparation of slides documenting the history of the Old Patent Office Building and the National Museum of American Art.

Other grants were awarded for the establishment of a hands-on collection of Asian art and art materials for the Sackler Gallery; the preparation of illustrations for a book on nineteenth-century horticulture; a teachers' guide for the traveling exhibition "See You in the Funny Papers: 100 Years of American Cartoon Art"; the acquisition of a Lyon-Lamb Animation Controller for the Smithsonian Astrophysical Observatory; and a video camera to record historical events at the Anacostia Museum.

The National Museum of American History received support for a documentary recording of organ music for broadcast by "Radio Smithsonian"; the purchase of historic reproductions for use in the National Museum of American History's Hands-on History Room; and the design and fabrication of an exhibition about American bicycles, tricycles, cyclists, and cycling activities. The National Zoological Park was given funds for botanical shading for the spectacle bear enclosure; a video support teaching microscope for the soil arthropod exhibit in the Invertebrate Exhibit, equipment for a program to train nationals of tropical countries in wildlife conservation techniques, and stipend support for graduate students in the reproductive physiology program.

In addition, the National Museum of Natural History received support for the conservation of specimens from the Alexander Crane Fly Collection, the production of a hand-

book on plant collection techniques, and the development of an interactive exhibit module on the study of molluscan shell structure.

The eighteenth annual Christmas Dinner Dance was held in the newly completed restaurant facility at the National Air and Space Museum. Now an established Smithsonian tradition, this gala evening again proved to be a tremendously successful fund-raising event.

A careful two-day jurying process selected the one hundred craft artists from thirty-two states who participated in the seventh annual Washington Craft Show in April. As a result of its growing national stature and increased attendance, the show was open to the public for four days, instead of three. A benefit reception and silent auction were held in conjunction with the Craft Show to raise additional funds for the Smithsonian. And the fifth High School Craft Competition recognized young artisans from the District of Columbia public schools.

Smithsonian National Associate Program

Serving more than two million members, the Smithsonian National Associate Program offers innovative educational opportunities throughout the nation, expanding the boundaries of the Institution to encompass all fifty states and the world. The program's far-flung membership is kept abreast of the Institution's activities through *Smithsonian* magazine and the newsletter, *Smithsonian Traveler*. In cooperation with other Smithsonian bureaus, the program has organized a diverse range of activities for members. As a result, the program has, since its beginning in 1970, fostered a strong national constituency for the Smithsonian's work while also establishing itself as an important source of unrestricted trust fund income.

A sampling of the activities and accomplishments of the program's five units is presented below.

Contributing Membership Program

Comprising more than fifty-two thousand households, the Contributing Members of the National Associate Program generously provide unrestricted funds in support of Smithsonian research, education, collections, and outreach programs. This support comes from the members' annual membership dues and contributions to special fund-raising appeals, as well as from matching gifts from their employers.

Members may participate at six levels: Supporting (\$60), Donor (\$125), Sponsoring (\$300), Sustaining (\$600), Patron (\$1,200), and the James Smithsonian Society (\$2,000).

Established in 1976, the Contributing Membership Program enjoys a national membership, with 90 percent of the constituency residing outside the Washington metropolitan area. Results of a spring 1988 membership survey confirm that Contributing Members are well-educated, affluent, and active participants in their communities. According to the survey findings, the majority of the membership is involved with the Smithsonian to support its museums and exhibitions, along with its research activities. In 1989, this support amounted to approximately \$2.8 million in net unrestricted gain to the Institution.

In appreciation of its members' loyal commitment to the Smithsonian, the program offers a variety of benefits and special programs. This year, members were invited to attend nine Smithsonian exhibition previews and receptions, including "Alberto Giacometti, 1901-1966" at the Hirshhorn Museum and Sculpture Garden; "Beyond the Limits: Flight Enters the Computer Age" at the National Air and Space Museum; and "The First Federal Congress, 1789-1791" at

the National Portrait Gallery. The members also viewed two important exhibitions at the National Museum of Natural History ("Crossroads of Continents: Cultures of Siberia and Alaska" and "Inside Active Volcanoes: Kilauea and Mount St. Helens"), both of which received Contributing Membership Program support via the Smithsonian Institution Special Exhibition Fund.

Additional special membership events were held at the National Museum of African Art, the Arthur M. Sackler Gallery, and the National Museum of American History. James Smithsonian Society members enjoyed an exclusive tour of Paul E. Mellon's estate and private collection of sporting art, plus a private viewing of "The Art of Paul Manship" at the National Museum of American Art.

Contributing Members received several complimentary publications in 1989, including *Crossroads of Continents: Cultures of Siberia and Alaska*, *A Jeweler's Eye: Islamic Arts of the Book from the Vever Collection*, and *Paul Manship*. All members received the *Smithsonian Engagement Calendar*, while donor and higher-level members received the poster, "Tropical Rainforests: A Disappearing Treasure." As a special gesture of appreciation, James Smithsonian Society members received the Smithsonian recording, *American Musical Theater: Shows, Songs, and Stars*.

As in previous years, Contributing Members in 1989 enthusiastically participated in "Smithsonian Treasures," a behind-the-scenes visit to the Institution. The highly popular, five-day tour currently is offered twice each year. Additional benefits are offered in conjunction with the Lecture and Seminar Program, including priority registration, complimentary tickets to one lecture, and often an invitation to an accompanying informal reception. This year, receptions were held in eight cities across the country.

Corporate Associate Program

During 1989, extensive planning was undertaken to design a new membership unit of the National Associate Program, the Smithsonian Corporate Associate Program. Scheduled to be operational in early 1990, this program will offer membership in the Smithsonian Institution to corporations across the country.

The objectives underpinning the program are threefold: to expand the Institution's funding base for unrestricted annual support; to encourage additional restricted underwriting of special projects and events; and to foster a greater understanding by American business of the important role played

by the Smithsonian in the cultural and scientific vitality of this country.

Lecture and Seminar Program

The Lecture and Seminar Program, now in its fourteenth year, is dedicated to providing National Associate members and the public with educational events that highlight the research and collections of the Smithsonian. In 1989, Smithsonian curators, scientists, and research associates presented lectures, seminars, family programs, and hands-on workshops in twenty-one U.S. cities.

The majority of the cities visited this year played host to Smithsonian events for the first time. These include the Northwest Chicago suburbs; Jackson, Mississippi; Colorado Springs, Colorado; Salem, Massachusetts; Harrisburg, Pennsylvania; South Bend, Indiana; Davenport, Iowa; Palo Alto, California; Green Bay, Wisconsin; Wilmington, Delaware; Pocatello, Idaho; Columbia, South Carolina; Orono, Maine; and San Jose, California.

Cities to which the Smithsonian returned in 1989 are Roanoke, Virginia; Seattle, Washington; Oshkosh, Wisconsin; Boone, North Carolina; Charlotte, North Carolina; Portland, Oregon; and Los Angeles, California.

This year, Portland collaborated with seven local organizations and the Lecture and Seminar Program to provide the Portland area with an exciting six-day program. Approximately twelve hundred people attended the program's ten events, including "Telescopes for Tomorrow" by Frederic Chaffee, Jr.; "Splendors of Asian Art" by Patrick Sears; and "Shepard to Shuttle: A Space Workshop for Teachers" by Kasse Andrews-Weller.

In addition to presenting events across the country, the Lecture and Seminar Program also coordinates international series. The American University in Paris, France, was the site of a program last year.

Six seminars managed by the program were held in Washington, D.C., presenting topics such as "Crossroads of Continents: Cultures of Siberia and Alaska" and "Treasures of 15th Century Persian Art." Another six seminars were held at resort locations, including "Salute to American Popular Song and Jazz" at the Broadmoor in Colorado Springs, Colorado, and "Creation Myths: The Origins of Reality" at Mohonk Mountain House in New Paltz, New York. The final seminar held this year, at the Experimental Aircraft Association Air Adventure Museum in Oshkosh, Wisconsin, highlighted aircraft restoration and technology.

Research Expedition Program

The Smithsonian Research Expedition Program was established in 1988 as another important benefit of National Associate membership. The purpose of the program is to offer Associate members the opportunity to become personally involved with the Institution by working closely with Smithsonian professional staff and to provide Smithsonian scientists with an additional source of field assistance and funding for their research projects. In the 1989 Research Expeditions, ninety-four Associate members participated, contributed more than \$100,000, and provided nearly 65,000 hours of volunteer labor.

Last year's volcano project expedition led by scientist William Melson of the National Museum of Natural History is one example. Eleven Associate members monitored and recorded the activities of Arenal Volcano near San Jose, Costa Rica, for two weeks. The data they collected is an integral part of the ongoing research being conducted at the site.

In addition, eight other expeditions were conducted this year in England, Montana, Florida, Virginia, and Washington, D.C. Topics included archaeology, Native American studies, wildlife ecology, photographic documentation, aerospace curriculum development, and archival research.

Associates Travel Program

The Associates Travel Program organizes educational tours that mirror the many and varied interests of the Institution. In 1989, more than six thousand National Associates participated in the 142 foreign and domestic tours offered by the program. And since the program's inception in 1975, more than eighty-six thousand Associates have embarked on program-organized journeys. The educational value of each outing is enhanced by carefully chosen study leaders. One or more Smithsonian staff members are present on each trip.

In 1989, nineteen new foreign study tours were offered. For the first time, Associates visited the national parks of Zimbabwe and Botswana, toured the gardens of Normandy and Brittany (France), and visited archaeological sites in eastern Turkey rarely seen by foreigners. Another new program, "England for Families," drew grandparents, parents, and children.

Study voyages continued to be among the most popular ways to travel and learn. More than 750 Associates boarded specially chartered vessels bound for diverse areas of the

globe. Participants cruised the Red Sea, making inland journeys to Luxor and Petra. Sixty-three adventurous members joined scientists aboard the *Society Explorer* for a two-week voyage along the Antarctic coast. Members also explored the Indonesian islands of Java and Sumatra, traveled down Siberia's majestic Lena River, circled the British Isles, and rounded Cape Horn en route from Rio de Janeiro, Brazil, to Santiago, Chile. Experts in regional culture and ecology accompanied all cruises and offered on-board lectures on topics ranging from history and current politics to geology and marine life.

Fourteen tours were offered to Associates wishing to visit China. They included some old favorites: China Odyssey, Yangtze Cruise, Silk Route, and History through the Dynasties. New offerings included Mongolia, Across the Heart of Asia and Seminars in Xian/Beijing, and Qufu/Beijing. Following the political unrest in June, however, the fall 1989 tours were cancelled.

Countryside programs in 1989 offered the opportunity to live in small towns in Hungary, England, Wales, Italy, Switzerland, Austria, or France. Foreign residential seminars were held at Trinity College, Dublin; at the American University in Cairo; and at the Hotel Villa Carlotta in Florence. Decorative arts, literature, and ancient history were among the topics studied in depth during these two-week learning experiences. Enrollment in the Oxford/Smithsonian seminar, now in its eleventh year, continued to be strong, with Associates taking part in courses that included British literature, gardens, and historic architecture. Beginning this year, domestic seminars have been incorporated into the Associates Travel Program, affording members an even wider choice of seminar options in the United States and abroad.

More than fifty Domestic Study Tours were offered in 1989, providing Associates with numerous opportunities to experience the natural wonders and regional heritage of America. Popular hiking programs were planned to Yosemite, Big Bend, and Bryce and Zion National Parks. Associates camped in Idaho on a Salmon River rafting trip and floated through the Grand Canyon on a Colorado River adventure. Study leaders lectured on the geology and natural history of these wilderness areas. Mangrove habitats and subtropical plants were the focus of a week-long study in the Everglades during a trip to the Ten Thousand Islands area. These active outdoor programs help to increase understanding and appreciation for conservation of our natural resources.

New excursions in American history and culture included "Renaissance Miami," "The Old West," and "Romance of

the Gold Rush." Participants enrolled in "Take Me Back to the Ballpark," a study tour of historic stadiums, and found themselves the subject of unprecedented media attention in Chicago, Detroit, and Cleveland. Another new tour, "Detroit Auto Barons," focused on the impact of the automobile in American society.

Special Christmas programs were expanded to Asheville and Santa Fe while Associates celebrated their seventeenth annual "Christmas at the Smithsonian Weekend." Members continued to participate in the "Washington Anytime Weekend," although the smaller numbers this year reflected an overall decline in Washington, D.C., tourism in 1989.

Of the four cruises offered, three were new. The Sea of Cortes study tour featured superb viewing of sea lions and blue whales. Another natural history cruise explored the remote inlets and fjords of Alaska's southeastern panhandle. Herman Viola, director of the Columbus Quincentenary Program at the National Museum of Natural History, accompanied Associates on a fall cruise up the Columbia River and lectured about the Lewis and Clark and the Wilkes expeditions. The popular *Delta Queen*, chartered for the fifth time in six years, steamed from New Orleans to Memphis with 160 Associates aboard.

Smithsonian Resident Associate Program

As the privately supported cultural, continuing education, membership, and public outreach arm of the Smithsonian Institution for metropolitan Washington, the Resident Associate Program (RAP) is a model for museum and university programs nationally and internationally. RAP engages area residents directly in the life of the Smithsonian through activities that enhance and complement the Institution's collections, exhibitions, and research, and through programs consistent with the Smithsonian's role as the national museum complex.

In 1989, the program offered 1,938 high-quality and timely activities, attended by more than 294,000 adults and young people. Membership in the Resident Associate Program numbers 58,000, representing about 130,000 persons.

This year, RAP won several special awards and branched out in new directions. From December 15 through April 25, sixteen works commissioned by RAP over as many years were exhibited to critical acclaim in the new, informally dubbed "Escalator Gallery" in the S. Dillon Ripley Center. The program won two awards for the editorial and design excellence of its monthly publication the *Smithsonian Associate* from the National University Continuing Education Association and the National Association of Government Communicators. RAP also added three institutions to its impressive roster of collaborating organizations—the National Gallery of Art, Digital Equipment Corporation, and the Organization of American States Museum of Modern Art of Latin America.

An impressive number of RAP's programs received national and international attention, bringing widespread credit and recognition to the Institution and to RAP. RAP's activities were reviewed in the *New York Times*, and *U.S. News & World Report*, as well as in the Japanese, Chinese, and Soviet press.

In addition, RAP's Development Office concluded its first year of operation and was able to expand RAP's curriculum and audience participation to include Afro-American studies programs that attracted many more African Americans to RAP events than have attended in the past. RAP also expanded its certificate course program to include Latin American studies.

The program continued to commission and sell high-quality, limited-edition works of art—including many created by Washington artists—to its membership and the general public. In recognition of the eightieth birthday of eminent Washington painter and printmaker Jacob Kainen, RAP commissioned a vibrant abstract lithograph titled *Bright*

Surround. Proceeds from this piece by Kainen, along with the proceeds of its popular semiannual art inventory sales of previously commissioned works, have brought the program substantial revenue from art purchases. Net art income for fiscal year 1989 totaled well over \$75,000.

Cooperation with Smithsonian Bureaus and Major Offices

During fiscal year 1989, RAP worked with a wide range of Smithsonian museums to create exciting and innovative programs. Notable examples included four chamber music series cosponsored with the National Museum of American History; the Twentieth Century Consort music series cosponsored with the Hirshhorn Museum and Sculpture Garden; and occasional series of evenings at the National Portrait Gallery, featuring Eleanor Lansing Dulles and J. William Fulbright in dialogue with biographer and assistant director of the National Portrait Gallery, Marc Pachter. Evenings with major young artists and eminent critics were featured in collaborative lectures with the Hirshhorn Museum and Sculpture Garden. The National Museum of Natural History cosponsored a lecture by American explorer Paul Schurke, who was part of an international team that crossed the Bering Strait by dogsled and skis in the spring of 1989. Finally, a concert of Uzbek dance and music was cosponsored with the Arthur M. Sackler Gallery to complement its exhibition, "Timur and the Princely Vision: Persian Art and Culture in the Fifteenth Century."

Other RAP programs for adults and children that showcased Smithsonian exhibitions included "From the Fountain of Freshness: Islamic Arts of the Book," a seven-session Campus on the Mall course with a museum tour. This event was cosponsored with the Sackler Gallery in conjunction with its exhibition, "A Jeweler's Eye: Islamic Arts of the Book from the Vever Collection." A children's workshop, "Chinese Calligraphy: Writing with a Brush," complemented the Sackler Gallery exhibition "Yani: The Brush of Innocence." World-renowned master drummer Baba Olatunji and Drums of Passion performed as part of RAP's recognition of the National Museum of African Art's exhibition "Sounding Forms: African Musical Instruments."

Several programs celebrated the 150th anniversary of photography and the National Museum of American Art exhibition "Photography of Invention." Among these programs were a lecture by photographer, scholar, and teacher Beaumont Newhall (cosponsored with the National Gallery of Art) and a class for Young Associates, "First-Time Photos."



Author Alice Walker spoke to a Resident Associate Program audience in June. (Photograph by Hugh Talman)

To celebrate the centennial of the National Zoological Park, RAP presented the Washington premiere of the Disney film *Cheetah* and a three-part lecture series held at the Zoo titled "World Wildlife Adventures." The filled-to-capacity program was cosponsored with the World Wildlife Fund.

Museum Shops sponsored two Shops parties for RAP members, as well as book-signing receptions following lectures. RAP program staff continue to meet regularly with the curatorial staffs of all Smithsonian museums to discuss program concepts.

Outreach

RAP actively seeks to involve new audiences in its activities through a variety of initiatives, special-interest projects, and its Development Office. One such effort is RAP's Discover Graphics program, which offers two hundred talented area public high school students and their art teachers free etching and lithography training on fine Smithsonian presses each year. The culmination of the program is a juried two-month exhibition of student prints in the Rotunda Gallery of the National Museum of Natural History. The Gene Davis Printmaking Studio in the Arts and Industries Building, where the program is established, also serves as a printmaking and bookbinding complex for RAP members and Smithsonian staff.

Tuition-free scholarships for Young Associate and adult courses were awarded through the District of Columbia public school system. This year, 89 inner-city young people and 175 adults received scholarships.

The twenty-third annual Kite Festival, cosponsored with the National Air and Space Museum and open to members and the general public, attracted more than ten thousand

persons to the Mall in March and received extensive media coverage.

RAP's weekly lecture series, Tuesday Mornings at the Smithsonian, is designed to appeal to retired persons and others who prefer participating in daytime programs. The thirty lectures offered this year were presented by Smithsonian scholars on a wide range of topics. The program includes discussions of exhibitions and research at the Smithsonian and is preceded by continental breakfast in the Associates Court. Now in its seventh year, the program attracted 8,300 people.

Outside Collaboration

RAP cosponsored its sixteenth annual lecture series with the Audubon Naturalist Society of the Central Atlantic States and the Friends of the National Zoo. The series attracted 9,600 persons. Throughout the year, RAP also collaborated with other organizations to produce lectures, seminars, films, concerts, and courses for young people and adults. Organizations RAP worked with included the American Institute of Architects, the National Geographic Society, the Textile Museum, Filmfest D.C., Meridian House International, the World Wildlife Fund, the Wilderness Society, National Aeronautics and Space Administration, the Council for the Advancement and Support of Education, the Baltimore-Washington Institute for Psychoanalysis, the *Washington Post*, WETA-TV, Washington Independent Writers, the Washington Project for the Arts, the International Poetry Forum, District Curators, the Santa Fe Chamber Music Festival, and major museums in New York, Baltimore, and Philadelphia.

Other unique programs led to still other collaborations. RAP's annual metropolitan Washington area symposium (this year on city infrastructure) was cosponsored with the National Building Museum, the Federal City Council, the Pennsylvania Avenue Development Corporation, the D.C. Preservation League, the Washington Chapter of the American Planning Association, the Committee of One Hundred on the Federal City, and the Greater Washington Board of Trade. The American Association for the Advancement of Science continued to collaborate with RAP's Campus on the Mall program to produce the popular "Frontiers of Science" courses. AMTRAK and CSX rail systems cosponsored railroad tours that were a highlight of RAP's spring and fall tour offerings.

"Speak of Me as I Am," a stirring salute to Black History Month, was presented in collaboration with the University of

Alabama at Birmingham's Town and Gown Theater. Recently instituted collaborations with publishers such as Harry N. Abrams and Doubleday continued to bring fascinating authors to Smithsonian platforms to discuss their latest books. Among these authors were Leon Uris, Margaret Atwood, and Billy Kluger.

Foreign embassies and international societies have collaborated with RAP to produce some of the most popular and stimulating offerings. In 1989, these included the 28th International Geological Congress, which cosponsored the lecture series "Geological Science Today: Planets to Plate Tectonics"; the Embassy of the German Democratic Republic, for an all-day seminar; the Embassy of Australia, for a film series; and the Embassy of Indonesia, for special musical performances. The Campus on the Mall planned popular multisession courses cosponsored with the embassies of Ireland, Belgium, the Netherlands, the Federal Republic of Germany, Turkey, Yugoslavia, Thailand, and New Zealand.

Afro-American Studies

Encouraged by the support of the Institution to build larger audiences and more membership from Washington's African American community, RAP's Development Office concluded its first full year of operations in fiscal year 1989. The office implemented an Afro-American Studies program for which all RAP programmers, in addition to the office, plan events. Activities are announced in a quarterly Afro-American brochure, as well as through a direct-mail marketing campaign, radio advertising, intensive public relations efforts, and grass roots involvement with churches and organizations in the African American community. The Development Office has begun to create new collaborations within the Washington community and to broaden the program's African American participation.

Substantial progress has resulted from these efforts. The number of events produced was double that for the previous calendar year; RAP now has one of the most consistent offerings in liberal arts connected to Afro-American studies outside of a major college or university. New audiences were attracted as a result of these efforts; almost ten thousand people attended the forty programs. Average African American participation in these targeted events was 65 percent and, in many cases, was over 80 percent. Response from the community has been favorable, with major African American media publications, television, and radio devoting special features to these events. Focus in the next fiscal year will be

on building continued awareness and attracting a larger African American membership.

Campus on the Mall

Through the Smithsonian Campus on the Mall, RAP provides the only Institution-wide avenue for continuing studies, offering six- to eight-week lectures, as well as intensive weekend courses. In four terms during 1989, the program offered more than two hundred lecture courses and attracted approximately seventy thousand students. This year, the Campus on the Mall concluded its first certificate of participation program, a seven-course series on Western civilization offered over a period of one and a half years. The popularity of this concept led to the creation of a second certificate of participation program, "The Smithsonian Series on Latin American Art and Civilization," in collaboration with the Organization of American States Museum of Modern Art of Latin America. The Campus on the Mall also offers a wide variety of courses for which participants may receive credit through the University of Maryland University College. The year's best-received offerings included media-related studies, a new lecture series on the Supreme Court, and a wide range of science courses.

Studio Arts

In 1989, 241 courses and workshops encompassing contemporary and traditional arts and including both color and black-and-white photography were offered to 17,300 participants. The courses and workshops are offered in four terms per year and feature hands-on experience in studio arts, as well as access to RAP's state-of-the-art photography laboratory. All courses are kept small for optimal benefit.

Notable new programs included a workshop, "Traditions in Hand-Built Pottery," featuring techniques of Native American and West African groups; "Fine Handcrafted Furniture: From Workshop to Marketplace," an all-day seminar made possible by a grant from the Hechinger Foundation; and an all-day seminar cosponsored with the Society of Gilders titled, "The Art of Framing." Renowned instructors and lecturers included professional knitting designer Alice Starmore and painter Benny Andrews.

Lectures, Seminars, and Films

Lectures, symposia, and all-day seminars featuring distin-

guished scholars and experts addressed a wide range of current topics in the arts, humanities, and sciences. Individual films and film series included many U.S. and Washington premieres. A total of 28,000 people attended 100 lectures, and 1,800 people attended 17 seminars; attendance at 66 films exceeded 18,000. The lecturers included novelist Alice Walker; poet Nikki Giovanni; dance critic Anna Kisselgoff; Nobel Prize-winning geneticist James D. Watson; jazz musician and author Milton Hinton; sports figure and author Arthur Ashe; and journalists James Fallows, Roger Wilkins, Neil Sheehan, Robert MacNeil, and Stanley Karnow. A continuing occasional series showcasing local and national architects included a lecture by Hugh N. Jacobsen.

All-day seminars featured such topics as medieval French architecture, Hinduism, Central American history and politics, the art and culture of Dresden, global climate change, and the history of World War II.

Singles' Evenings, the widely publicized series featuring lectures by Smithsonian scholars, were presented four times this year. Programs took place at the Hirshhorn Museum and Sculpture Garden, the National Museum of American History, and the Renwick Gallery. The series, attended equally by men and women, attracted capacity registration totaling 4,800, and additional interested people crowded the program's wait list.

Notable film presentations included an eight-part series of European and American films portraying the French Revolution during its bicentennial year and a five-part *Glasnost* documentary series of films made in the Soviet Union. A delegation of Soviet filmmakers attended the opening night of the *Glasnost* series. The world premiere of the documentary *The Wilderness Idea: John Muir, Gifford Pinchot, and the Battle for Wilderness* celebrated the twenty-fifth anniversary of the Wilderness Act. Washington film premieres included *The Navigator*, *Little Dorrit*, *For All Mankind*, and *War Requiem*.

Performing Arts

RAP, in its sixth year of sponsoring ticketed performing arts events, presented 116 performances that were attended by 30,000 persons. Highlights were colorful presentations of music and dance from Indonesia, Uzbekistan, and Tibet; traditional music from South and Central America performed by the ensembles Yolocamba I Ta and Rumillajta; an

evening with Broadway star Ruth Brown; the second annual Thelonious Monk International Jazz Piano Competition; and five concerts showcasing the best in string quartet performances today, which were presented in collaboration with the University of Maryland's Summer Institute for the Creative and Performing Arts.

Major series offerings included the famed Emerson String Quartet, the Twentieth Century Consort, two jazz series, and a special evening with young jazz star Harry Connick, Jr. Other popular events included the Pro Musicis Foundation series spotlighting young musicians and critically acclaimed performances by the Smithsonian chamber music program's artists-in-residence—the Smithson String Quartet, the Smithsonian Chamber Players, the Castle Trio in its debut season, and the Smithsonian Chamber Orchestra. Salutes to National Dance Week by the Philadelphia Dance Theatre, to National Women's History Month by actress Joanne Hamlin, and to Hispanic Heritage Month by Latin jazz star Hilton Ruiz, as well as delightful Sunday morning brunch concerts and popular outdoor courtyard concerts, enhanced the season's diverse schedule.

Study Tours

About eighteen thousand people participated in 556 events in the fields of art, architecture, archaeology, history, industry, and science. One- and two-day trips ranged from excursions to New York City, to study the fashion industry and view important new art exhibitions, to a two-day architectural study trip to Cape May, New Jersey. Sailing trips on Maryland's historic waterways; day-long birding excursions; and day tours to many Civil War sites in Maryland, Virginia, and Pennsylvania all attracted interested participants.

The popular series of railroad tours focusing on rail technology and history continued, highlighted by the first official public charter trip on the new Allegheny Central Railroad between Cumberland and Frostburg, Maryland. Nearby visits led by experts featured walking tours of historic neighborhoods, parks, and cemeteries, as well as behind-the-scenes tours of artists' studios and museum areas not usually open to the public. Guided visits to local sites included the Smithsonian's Museum Support Center, the National Museum of Natural History's Transmission Electron Microscope Laboratory, various African American churches, and Washington's private art galleries.



Participants enjoy the Resident Associate Program's Halloween party at the National Portrait Gallery. (Photograph by Jeffrey Crespi)

Young Associate and Family Activities

In 1989, several thousand young people, aged four to fifteen, participated in workshops, classes, monthly free films, tours, performances, family lecture programs, and a summer camp sponsored by RAP. Workshops and classes designed for children accompanied by adults continued to be important learning tools. A total of 205 Young Associate and Family activities took place this year, attended by 13,300 individuals.

This year's family Halloween Party took place at the National Portrait Gallery with the theme "Picture Perfect Family Party." Other annual events were the winter film and reception in conjunction with the "Trees of Christmas" display in the National Museum of American History; the summer "Evening Picnic at the Zoo"; and a Children's Book Week family program.

Discovery Theater

Celebrating its eleventh season, Discovery Theater presented 372 performances for 71,700 young people and their fami-

lies. In November, Discovery Theater produced the original play "Rosa Parks: Speaking Out," with a cast of deaf and hearing actors and actresses. The play was presented through a combination of spoken English, American Sign Language, and gesture. For the first time this year, Discovery Theater extended its regular October through June season to include an important summer performance, a five-day event in July featuring deaf international performers cosponsored by the Deaf Way, a citywide festival and conference on the language, culture, and history of deaf people.

Volunteers

Nearly four hundred volunteers provided invaluable assistance to the RAP program, monitoring activities and performing vital office tasks. Serving well over twenty-five thousand hours, the volunteers were recognized at a spring luncheon for office volunteers and at an awards reception held in the Arthur M. Sackler Gallery.

Office of Special Events

Special events are essential for developing and maintaining important constituencies. As the principal office responsible for organizing Institution-wide events and programs, the Office of Special Events coordinated several hundred activities in 1989. Many of these functions were cosponsored by corporations or other organizations.

Events arranged by the office this year included a Martin Luther King Day celebration, the Institution's annual garden party for members of Congress, a reception highlighting minority cancer awareness, and a reception honoring the historic documents, the Declaration of the Rights of Man and of the Citizen and the Constitution of 1791, in conjunction with France's bicentennial of the French Revolution. In addition, the office answered more than one thousand telephone requests from outside organizations seeking to cosponsor an event at the Smithsonian and to use its facilities.



The Ambassador of France addresses guests as Smithsonian Secretary Adams looks on at the reception honoring the historic documents the Declaration of the Rights of Man and of the Citizen and the Constitution of 1791, which were on display in the Arts and Industries Building from May through October in conjunction with France's bicentennial of the French Revolution.

Office of Congressional Liaison

The Office of Congressional Liaison monitored and advanced negotiations and legislative activity relating to the establishment of the National Museum of the American Indian. Measures pertaining to the repatriation of American Indian human remains and ethnographic materials were closely watched as well. Administration and congressional initiatives, particularly those concerning the environment, general government, and tax-exempt organizations were tracked, and the office assessed their potential impact on Smithsonian operations and programs. Expanded liaison activities provided an opportunity to increase awareness of the Institution's programs and activities among members of Congress and to extend Institution services to their constituencies.

ADMINISTRATION

John F. Jameson, Assistant Secretary for Administration

Administrative and Support Activities

Operating primarily behind the scenes at the Smithsonian, a network of administrative and technical support offices provides services essential to the diverse operations of the Institution. These offices underpin scholarly and public activities and ensure central oversight of and accountability for the management and use of financial, human, and physical resources. Fifteen offices and their divisions serve a range of functions, from personnel administration to protection services, from budget to environmental management and safety. Funding for central services in 1989 amounted to about 7 percent of the Institution's total operating expenses, exclusive of maintenance, operation, and facilities protection costs.

Office of Planning and Budget

The Office of Planning and Budget (OPB) coordinates long-range planning for the Institution, develops and assesses policies and procedures for the formulation and execution of the Institution's budgets for appropriated and nonappropriated funds and monitors the actual use of financial and human resources relative to approved plans. In fiscal year 1989, the office explored ways to facilitate an informed dialogue about Institution-wide strategic planning. Along with a small group of central and bureau managers, OPB previewed a series of educational sessions with planning experts who had worked with a variety of organizations, including the private sector, governmental agencies, nonprofit organizations, and colleges and universities. One of the firms is currently working with the Institution to assess the need for strategic planning.

The office also restructured the *Five-Year Prospectus* to highlight programmatic goals and the secretary's "Areas of Emphasis." This change followed from other improvements to the internal planning process that brought greater focus on broad management and program issues, called for specific planning objectives, and identified a series of planned action steps that should be taken over the next five years to achieve these objectives.

The office also created analytical briefing materials and distributed them to assistant secretaries to facilitate informed budget decisions, implemented an effort to encourage bureaus and offices to assess their programs and to consider the results of these assessments during budget deliberations, expanded the use of automation, initiated the development of a new automated personnel cost projection system, and issued additional sections to the Smithsonian Institution *Budget Manual*.

Office of Personnel Administration

The Office of Personnel Administration (OPersA) continued to concentrate its efforts on improving the quality of staff services provided to Smithsonian bureaus and organizations. Modernization of the personnel system was begun last year with conversion to an integrated personnel-payroll system operated by the Department of Agriculture's National Finance Center. This year, that process continued with the implementation of a special examining office under delegation from the Office of Personnel Management that was charged with the task of speeding up staffing and recruitment actions. The office underwent an extensive evaluation by the National Academy of Public Administration to identify ways to enhance operational effectiveness and service efficiency.

Office of Equal Opportunity

The Office of Equal Opportunity (OEO) continued to emphasize the placement of minorities in senior, professional, and administrative positions through the Institution-wide affirmative action plan. The Institution sustained its limited but steady progress to achieve cultural diversity in key positions by the appointment of a minority woman as an assistant secretary and American Indians, Asian Americans, African Americans, and Hispanics to a variety of research, and curatorial and program management positions. In conjunction with the District of Columbia Public Schools and the Smithsonian Building Managers' Council, the OEO began a General Equivalency Diploma program for Smithsonian employees. Working with the Office of Personnel Administration, the OEO inaugurated a training program to reinforce the equal opportunity responsibilities of managers and supervisors.

Office of Information Resource Management

The Office of Information Resource Management (OIRM) is charged with the role of assisting bureaus and offices with managing information and using information technologies. These technologies include computers, computer programs, systems development methods, and communication lines and networks. During 1989, OIRM focused on providing services to the Institution, increasing the development of automation systems, and planning for future initiatives.

OIRM implemented the first phase of an Institution-wide electronic mail system, linking more than 350 management

and staff into a central system. An automated staff “locator” system and a digital paging system linking the Museum Support Center, the Mall, and the National Zoo were also implemented. OIRM continued to establish data communications service between the Mall and the Smithsonian Tropical Research Institute in Panama.

OIRM implemented new Collections Information System (CIS) data bases within the National Museum of Natural History for the mammals, birds, reptiles and amphibians, and botany collections, while CIS work began on data bases for entomology and anthropology and for the permanent collections of the National Museum of American Art and the National Air and Space Museum. OIRM implemented the first phase of a Generic Report and Search Processor for CIS that allows users to define and generate their own reports. An integrated staff identification telephone book and mailing list system also was implemented. OIRM trained more than 1,100 Smithsonian staff in the use of microcomputer and mainframe systems and handled more than 3,600 computer-related inquiries at its “Help” desk.

For the first time at the Smithsonian, managers and users of information technologies formed partnerships to address long-term goals. In establishing these partnerships, OIRM initiated a long-term planning process to provide a comprehensive approach to assessing needs and preparing budget requests for information technologies.

Other Activities

Providing duplicating services to the entire Institution and a wide variety of photographic services to the principal non-art museums of the Smithsonian, the Office of Printing and Photographic Services (OPPS) continued to combine state-of-the-art technology with traditional documentary techniques. The office’s highly successful cold storage facility was expanded during 1989 to provide additional space for the archival protection of its growing photographic collection. The cold storage room has been in operation for more than six years and is designed to extend the archival life of color photographs by at least ten times. The Photographic Services Collection is growing by approximately 20,000 new photographs annually. These include both documentation of the Institution’s artifact collections and documentation of historic events. A major program to completely document the inauguration of President Bush was undertaken in December and January. Working closely with inaugural officials and local agencies, the office made the most comprehensive

photographic documentation of an inaugural event that has ever been held in the public domain.

The Management Analysis Office (MAO) continued to identify and promote actions to strengthen internal controls. The office conducted several reviews of Institution units and activities, including those that might reduce costs and improve efficiency by hiring outside contractors to perform commercial functions traditionally carried out by Smithsonian staff. MAO publishes a biweekly employee bulletin that covers timely administrative matters.

The Travel Services Office continued to provide efficient and economical travel arrangements for Smithsonian employees and consultants. Arrangements were made to a wide variety of destinations and from many areas to Washington, D.C., for seminars, workshops, and other events such as the Festival of American Folklife.

The Smithsonian Institution ombudsman, a position established in 1977, serves as a neutral party to whom employees can bring work-related problems and concerns. During the past year, the ombudsman assisted approximately two hundred employees at a variety of levels with problems involving supervisor–employee conflicts, pay and leave questions, and career moves.

The Facilities Services Group, guided by the Office of Facilities Services (OFS), provides facilities planning, design, and construction; space management and real property development; physical plant operations, maintenance, and improvement; mail services; transportation management; protection services, including physical security and medical services, safety, fire protection, and occupational health; and architectural history and historic preservation.

Formal goal-setting allowed OFS to refine program direction and to provide a framework for strengthening and improving management service. Major areas of emphasis included organizational and human resources development and several management initiatives. Training and professional development activities continued to be provided to the nearly 1,250 employees in the Facilities Group. OFS played a central role in developing the Institution’s first long-range major construction program. It also assisted senior-level Smithsonian management on matters associated with the proposed development of the National Museum of the American Indian and on the possible future acquisition of a building for administrative support needs.

Under the direction of the Office of Design and Construction (ODC), the architectural firm of Hellmuth, Obata, and Kassabaum began a detailed study of the Baltimore–Washing-

ton International Airport and the Dulles International Airport to determine how well these two sites would serve as a National Air and Space Museum extension. Construction of the Freer Gallery of Art improvements and the Sackler Link project are well under way, with major portions of the work, including structure underpinning, completed. Additional contract work for renovating major galleries is in the design development stage. Construction was completed on the Tupper Research Center at the Tropical Research Institute in Panama and on the Smithsonian Information Center in the Castle. Planning, design, and construction of major heating, ventilating, and air-conditioning improvement programs at two major museums—the National Museum of American History and the National Museum of Natural History—continued during 1989. The program at Natural History will continue through the decade and possibly into the succeeding decade. These multimillion dollar programs are critical to the efficient operation of these two major facilities.

The Office of Plant Services installed a local area computer network to improve material management and inventory control support. Energy conservation efforts were strengthened through continued partnership with local utilities companies. The Institution received an award from the Potomac Electric Power Company for in-house energy conservation initiatives. Facilities maintenance and repair inspections continued, including a field inspection of the Cooper-Hewitt Museum in New York City. Automated facilities monitoring continued to receive national attention as a model program for monitoring and controlling lighting, temperature, and humidity conditions.

Visits by various heads of state and other foreign dignitaries required close cooperative efforts among security staff in the Office of Protection Services (OPS) and officials of the Secret Service, the State Department, and other jurisdictions. A major effort was completed at the National Museum of Natural History when all the locks (1,800) in the building were changed. Card access systems were extended to new sites, including the National Museum of American Art, the National Portrait Gallery, and the Garber Facility. Some systems control access between public and nonpublic spaces and some provide careful control over and an audit trail of access to collection storage areas. The National Air and Space Museum became the last major Smithsonian facility to be converted to the Institution's own proprietary security system.

A fiber optic ethernet network was installed between each of the buildings on the Mall, and several hundred meters of

coaxial cable were placed strategically inside the buildings to enable OPS to create intercommunication between its various security sites. The network enables OPS to communicate quickly between the offices, to share software resources, to consolidate computer programs, to standardize reporting procedures, and to improve monitoring of and response to electronic security systems. A new automated medical records system was developed to meet the Office of Personnel Management requirement to have a medical record on each employee. The reporting system contains the information required by various monitoring systems and makes it possible to perform analyses of the more than twenty-three thousand visits to the health units each year.

Recognizing that a healthy work force is one of the Smithsonian's most valuable assets, OPS expanded the Institution's occupational health program by instituting employee wellness activities. In addition to other support groups such as Alcoholics Anonymous, an HIV-positive support group was established as part of the Employee Assistance Program.

An outgrowth of the twelfth annual National Conference on Museum Security, sponsored by OPS, was that the office would make available at cost a set of security documents on disk to security professionals from other museums. The documents consist of "generic" security, fire, and emergency regulations, procedures, and checklists that security managers can quickly apply or adapt to their own requirements at considerable savings in administrative time and work load.

The Office of Environmental Management and Safety (OEMS) intensified Smithsonian-wide safety training with courses offered on machine guarding, laboratory and radiation safety, office safety, electrical safety, fire protection, and other occupational safety health techniques. In conjunction with the Office of Museum Programs, OEMS conducted its second annual three-day workshop geared to small museums and other educational and cultural institutions. Eleven individuals from the United States and Canada focused on program development and problem solving in the areas of fire protection, disaster planning, occupational safety, and health and environmental management. Participant feedback was very positive.

Two professional staff members joined the Office of Architectural History and Historic Preservation to assist with research and publication of architectural history. An innovative historic preservation project to record on videotape the renovation process of the Great Hall of the Smithsonian Institution Building has proven to be a successful means of

Smithsonian Institution Women's Council

documentation that will be used for other such projects. The Smithsonian Furnishings Collection acquired seventy-nine new items and introduced a line of reproduction furniture that included several collection pieces. Restoration efforts combining preservation and furnishings in public spaces of the Smithsonian Building were crowned by placing in the Regents Room the restored portrait of William Jervis Hough, a regent of the Smithsonian from 1845 to 1847 who served as temporary secretary of the Institution pending the selection of Joseph Henry, the first secretary.

The Office of Procurement and Property Management continued to provide logistical support and acquisition policy guidance to various areas of the Smithsonian. This included a contract award for external audit services through a seven-month competitive process and an award for a conceptual study of an off-site extension of the National Air and Space Museum. A contract for the replacement of the Castle's windows was substantially completed. Administration of contracts continued for the Olmsted Walk and Aquatic Habitat exhibit at the Zoo, alterations and renovations at the Freer Gallery, and replacement of PCB transformers.

Established in 1972, the Smithsonian Institution Women's Council identifies and studies the concerns of employees, advises management on women's issues, and strives to improve working conditions. This year, chairperson Ellen Sprouls led the twenty-member council through self-assessment and goal-setting sessions in an effort to focus energies and limited time resources on specific projects. A seminar titled "Gender Perspectives in Museums" is being planned as a follow-up to the successful "Women's Changing Roles in Museums" conference held in 1986.

Four standing committees—Benefits, Newsletter, Outreach, and Programs—carry out most of the council's tasks. The Programs Committee cosponsored four training sessions with the Training Branch of the Office of Personnel Administration, focusing on topics such as preventing sexual harassment, communication skills, and managerial organization. The *Four Star* newsletter came out with a well-received new format for each issue, which features a theme developed through both investigative and editorial articles. An ad hoc committee developed a brochure on affirmative action that consolidates information on the Institution's activities in this area.

UNDER SEPARATE
BOARDS OF TRUSTEES

John F. Kennedy Center for the Performing Arts

Ralph P. Davidson, Chairman

To citizens and government leaders in this country, visitors from abroad, and members of the largest diplomatic community in the world, the John F. Kennedy Center for the Performing Arts symbolizes our nation's high regard for the performing arts and its dedication to the cultural enrichment of the United States and its people. Through its presentations and its nationwide education programs, the center gives millions of Americans a chance to learn about and enjoy live performances. It brings to this country the finest international ballet and opera companies. The center also recognizes American accomplishments in the performing arts by bringing programs from all over the country to its stages.

Created by an act of Congress in 1958 as a self-sustaining bureau of the Smithsonian Institution, the Kennedy Center is both a presidential memorial under the aegis of the Department of the Interior and a privately supported performing arts center directed by a board of trustees whose thirty citizen members are appointed by the president of the United States. Six congressional representatives and nine designated ex officio representatives of the executive branch complete the membership. This annual report covers the activities and programming presented by the performing arts center in Washington and around the country through its touring and education programs.

Performing Arts Programming

The 1988-1989 season at the Kennedy Center was attended by 22.9 million people in the Opera House, Concert Hall, Theater Lab, and Eisenhower and Terrace theaters. Another 197,550 people attended the free performances presented by the Kennedy Center through its Education Department, Holiday Festival, Cultural Diversity Festival, and Kennedy Center Open House Arts Festival. Also, 70,000 people attended the films presented by the American Film Institute in the AFI Theater.

Opera

In celebration of the fortieth anniversary of the founding of the Federal Republic of Germany, the Deutsche Oper Berlin presented the exclusive American engagement of two complete cycles of Richard Wagner's monumental *Der Ring des Nibelungen*. Audiences came from around the world for these celebrated performances that completely sold out months in advance.

Dance

The 1988-1989 ballet season was also highlighted by foreign visitors, including first-time Kennedy Center performances by Leningrad's legendary Kirov Ballet. The company presented four different programs, including two newly acquired Balanchine ballets. From Europe came the London Festival Ballet with full-length productions of *La Sylphide* and the rarely seen Ashton *Romeo and Juliet*. Five American companies rounded out the season. American Ballet Theatre performed two weeks in April; the San Francisco Ballet brought a new, highly praised *Swan Lake*; the Joffrey sold out two weeks with its delightful *Nutcracker*; Robert Weiss's Pennsylvania and Milwaukee Ballet danced in Washington for the first time after its landmark merger; and the Dance Theatre of Harlem returned for its customary spring season.

Dance America, sponsored by the Washington Performing Arts Society and the Kennedy Center, brought some of the country's most celebrated modern dance ensembles, including Liz Lerman's Dance Exchange, Anna Sokolow's Players' Project, and the Paul Taylor and Merce Cunningham Dance companies. In addition, the center presented a full week of the Martha Graham Dance Company.

Drama and Musical Theater

The 1988-1989 theater season was evenly divided among dramas, comedies, and musicals. Alfred Uhry's touching off-Broadway drama *Driving Miss Daisy*, with Julie Harris and Brock Peters, began the season, followed by Bill Irwin's hugely innovative and funny *Largely New York*, which continued its Washington success with seven Tony Award nominations in New York and a national tour. Barbara Rush headed the fine comedy drama *Steel Magnolias*, and Avery Brooks brought the probing biographical drama *Paul Robeson* to the Eisenhower stage.

Mamet's biting *Speed-the-Plow* made audiences laugh even as they cringed at the dark side of human nature, and Jackie Mason's *The World According to Me* offered pure comedy. The season came to a sobering finale with the Ezra Pound biographical drama *Incommunicado* and a superb production of Athol Fugard's recent *Road to Mecca*, with a cast that included the author, Nan Martin, and Kathy Bates.

On the musical front, the Opera House played host to three spectacular but very different shows that illustrate the incredible scope of the American musical theater—*Gypsy* starring Tyne Daly, *Sophisticated Ladies*, and *Into the Woods*.

Music

The National Symphony Orchestra had a busy season this year, playing twenty-eight weeks at home in the Kennedy Center Concert Hall and a week at the annual Casals Festival in Puerto Rico. The orchestra also completed a two-week American tour to Florida, Arizona, and California; three holiday concerts on the lawn of the U.S. Capitol; and a summer series at Wolf Trap Farm Park. In addition, the orchestra attracted a great deal of international attention when it was announced that Music Director Mstislav Rostropovich would return in February of 1990 to the Soviet Union for the first time since his exile and take the orchestra for concerts in Moscow and Leningrad.

The Terrace Concerts—highlighting piano and vocal recitals, chamber ensembles and orchestras, the International Series, the United States Information Agency's Artistic Ambassadors series, and the Young Concert Artists series—presented a roster of international stars and up-and-coming young artists. These included pianist Helge Antoni, the Emerson String Quartet, three evenings of Music from Marlboro, a program devoted to the music of American composer Charles Ives, and the Brandenburg Ensemble.

The annual Kennedy Center Friedheim Award, designed to recognize and encourage the creation of new American music, was awarded to two first-prize winners—George Tsontakis for his fourth String Quartet and Chinary Ung for *Spiral*.

Theater Chamber Players of Kennedy Center, the Choral Arts Society and Oratorio Society of Washington, and the Paul Hill Chorale returned for their annual concerts, as did the Lincoln Center Mostly Mozart Festival.

As always, a multitude of free events, many featuring performers from the Washington metropolitan area, took place in conjunction with the Holiday Festival in December and the Kennedy Center Open House Arts Festival in the fall.

Kennedy Center Associate Organizations

Many events at the Kennedy Center are produced by the center's artistic associates: the American Film Institute, which presents classic films, independent features, foreign films, and contemporary video works in its 224-seat theater, and the Washington Opera, which presented *Tosca*, *La Traviata*, *La Forza del Destino*, and *Pique Dame* in the Opera House and *The Postman Always Rings Twice*, *The Barber of Seville*, and a double bill of *Abu Hassan* and *The Impresario* in the Eisenhower Theater.



Susan Hogard and Peter Schaufuss performed in the London Festival Ballet production of Frederick Ashton's *Romeo and Juliet* at the Kennedy Center. (Photograph by Catherine Ashmore)

Educational and Public Service Programming

The Kennedy Center has a unique responsibility for advancing all the arts as part of the education of our nation's youth. In 1989, the center's Education Department sponsored performances and related events to more than six million people nationwide through four programs: the Alliance for Arts Education, American College Theater Festival, the National Symphony Orchestra Education Program, and Programs for Children and Youth (now called Theater for Young People).

The number of people directly served by the network of Alliance organizations in the states and special jurisdictions increased to an unprecedented 4.6 million in 1989, more than double that of the previous year. Four arts educators were awarded 1989 Kennedy Center Fellowships for Teachers of the Arts, and twenty-three school principals and superintendents were cited for fostering the arts in their schools. The Kennedy Center/National School Boards Association Award and two Citations of Excellence were given to school boards for their support of arts education. The Alliance sponsored a cultural exchange to Hong Kong and the People's Republic of China, with actor Richard Thomas as a performer with the U.S. contingent. The Alliance also produced the Concert Hall presentation and performance of twenty Presidential Scholars in the Arts.

More than 750,000 young people, teachers, and other adults participated in the Kennedy Center *Imagination Celebration*, the national children's arts festival program, in thirteen U.S. cities, Australia, and the People's Republic of China.

The American College Theater Festival (ACTF) presented its twenty-first year of programs in its goal to advance the finest work produced by college theater programs. More than 18,000 students and 2,200 faculty members representing 550 schools presented more than eight hundred college theater productions in 1989. Eighty productions were student written, and sixty-nine productions were mounted at twelve regional festivals. Five productions were brought to the national festival at the Kennedy Center in April, two of which were student originals. For the first time, the College of Fellows of the American Theatre invested four new fellows, and student acting finalists were trained in promoting their careers during the national festival. Audiences across the country exceeded one million. ACTF also sponsored numerous awards programs in playwriting, design, criticism, and acting, as well as cosponsored the Shenandoah

Playwrights Retreat.

The National Symphony Orchestra continued to present concerts and other events to further the music education of young and old in the nation's capital. The orchestra presented eighteen Young People's Concerts and "Meet the Orchestra" Concerts to 45,300 students, seven of whom shared the President's Box with Mrs. George Bush for one concert. For the general public, there were four Encore Concerts for Families and the Young Soloists' Competition for high school and college musicians, with the finals presented as free concerts.

Programs for Children and Youth, now called the Kennedy Center Theater for Young People, provided two hundred free or low-cost performances and events to audiences of more than 90,000. It offered classes in acting to approximately 750 Washington-area young people; some advanced students were also offered performance opportunities at the center. About 150 young people participated in playwriting workshops in the schools prior to the second Young Playwrights' Roundtable, which resulted in professional staged readings of four original scripts.

Educational Services used the performing arts resources at the center as a basis for workshops and other educational events for 7,000 secondary students, 1,000 teachers, and 2,600 other adults in fiscal year 1989.

The Education Department also commissioned three new works in 1989: *Chewin the Blues*, a Piedmont blues-style musical play featuring John Cephas and Phil Wiggins; *Journey*, a play by Jeff Church and Frederic Lee; and the play *Amber Waves*, by James Still. This brings the total number of commissions to thirty-five. In addition, it sponsored concerts by the Helsinki Children's Choir and Rong-Shing Children's Choir as part of its long tradition of showcasing young choristers of international acclaim.

Very Special Arts (VSA), an educational affiliate of the Kennedy Center, presented its first Very Special Arts Festival, drawing more than a thousand delegates from across the country and from fifty nations to the center and to other Washington locations for a week in June. At the heart of the festival was growing evidence that disability appears to increase creative potential rather than limit it. Such world-class artists as Michael Douglas, Marsha Mason, Barry Morrow, Jim Henson, Kenny Rogers, and Pearl Bailey joined volunteers, teachers, and others in this landmark showcase of model programs and innovative educational techniques designed for people with special needs. A culminating gala in the Concert Hall was broadcast nationwide in a prime time



Bill Irwin was a one-man show in *Largely/New York (The Further Adventures of a Post-Modern Hoofer)* at the Kennedy Center Eisenhower Theater. (Photograph by Chris Bennon)

television program, "From the Heart," on September 10.

The Kennedy Center Education Department also carries out a broad range of activities aimed at promoting cultural diversity. These include the National Program for Cultural Diversity, which encourages artistic activities that reflect our nation's cultural and ethnic variety through its sponsorship of performances, commissions, workshops, conferences, internships, and advisory and technical services in arts administration. These programs are supported by the U.S. Department of Education and by private funds raised by the Kennedy Center.

Subsidies from the Kennedy Center support many free and low-priced performances and events that were enjoyed in 1988 by more than a million people in Washington, D.C., and around the country. Since it opened in September 1971, the Kennedy Center has maintained a Specially Priced Ticket program in conjunction with performances produced and presented at the center. The largest of its kind in the nation, the program makes half-price tickets available to students, persons with permanent disabilities, senior citizens, military personnel (grades E-1 to E-4), and others on low, fixed incomes. The Kennedy Center bears the attendant costs.

In addition, eighteen thousand people visited and used the Performing Arts Library, which is a joint project of the Kennedy Center and the Library of Congress.

Funding

The Kennedy Center is unique in its operation as both a performing arts center and a presidential memorial. The National Park Service provides nearly \$5 million in funding through annual appropriations to maintain and secure the buildings as a presidential memorial; the performing arts operation is charged its pro rata share of such costs, which totals more than \$1 million annually. The Kennedy Center's Board of Trustees is wholly responsible for the cost of maintaining and improving the theaters, backstage, and office facilities.

Artistic programming at the Kennedy Center and its day-to-day performing arts operations are largely privately supported. The Kennedy Center also raises private funds for its wide range of free or modestly priced educational and public service activities. The nation's business community has made important contributions through the Corporate Fund, established in 1977 by a group of national corporate leaders. Under the leadership of Corporate Fund chairman David T. Kearns, chairman of Xerox Corporation, the 1989 Corporate Fund contributed approximately \$3 million from nearly three hundred corporations.

The Kennedy Center's private campaign to build a permanent endowment to help achieve the financial stability needed to sustain and increase the quality and variety of programming continued in 1989. As a result of the center's 1986 administrative affiliation with the National Symphony Orchestra, a joint campaign is now under way to build an endowment for the two institutions.

Kennedy Center Honors

The Kennedy Center Honors were first awarded by the Board of Trustees in 1978 to recognize individuals who have made outstanding cultural contributions to our nation. An annual event, the Honors Gala is the Kennedy Center's most important fund-raising benefit; the 1988 Honors Gala evening raised more than \$1.25 million in net proceeds to support programming. The artists honored were Alvin Ailey, George Burns, Myrna Loy, Alexander Schneider, and Roger L. Stevens.

National Gallery of Art

J. Carter Brown, Director

Friends of the Kennedy Center

The Friends of the Kennedy Center was founded in 1966 to foster public involvement in the center and obtain individual support through financial contributions and volunteer participation. Today, more than 41,000 members of the Friends and the National Symphony Orchestra Association provide much needed support for the overall operations of the Kennedy Center. Although a majority of members are drawn from the Washington, D.C., area, there are members in all fifty states, with Texas established as the first state chapter of the Friends.

Events produced by the Friends this year include the annual Radiothon to benefit the National Symphony Orchestra and the fifth annual Kennedy Center Open House Arts Festival, a free, day-long festival of performances by some of the best artists in the Washington area.

The Friends also administers a volunteer program with five hundred participants who provide free guided tours, staff the Information Center and gift shops, work in the administrative offices, and administer the Specially Priced Ticket program. In addition, Friends Assisting the National Symphony volunteers organize special events to develop new audiences for the National Symphony.

Operated by the Friends, the gift shops at the Kennedy Center house a collection of items related to the performing arts and to the Kennedy Center. Staffed by volunteer salespeople, the gift shops generated more than \$1 million in sales in 1989.

The National Gallery of Art, although formally established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own Board of Trustees, the ex officio members of which are the chief justice of the United States, the secretary of state, the secretary of the treasury, and the secretary of the Smithsonian Institution. Of the five general trustees, Franklin D. Murphy continued to serve as chairman of the board, with John R. Stevenson as the gallery's president. Also continuing on the board were Ruth Carter Stevenson, Robert H. Smith, and Alexander M. Laughlin. Paul Mellon is honorary trustee.

During the year, visitors entering both of the gallery buildings numbered 6,221,682.

Exhibitions

One of the largest exhibitions of the year—"Japan: The Shaping of Daimyo Culture, 1185-1868"—opened in October with more than five hundred treasured works of art from Japanese collections. The exhibition included an unprecedented number of loans designated as national treasures, important cultural properties, and important art objects. Representing the great contributions to Japan's artistic heritage by the families of the feudal lords who ruled Japan's provinces under the shoguns were portrait paintings and sculptures, screens, calligraphy, swords and armor, lacquer, ceramics, domestic textiles, Nō masks, musical instruments and robes, and tea utensils. An authentic Nō stage was constructed for the presentation of a festival of Nō drama that featured two of Japan's most distinguished master players performing in the United States for the first time. In addition, daily tea ceremonies were performed by Japanese tea masters in a gallery adjacent to a replica of a sixteenth-century Kyoto teahouse and garden that was constructed in the East Building with traditional ceremony by carpenters brought from Japan.

Also opening in October were a small exhibition of thirty-two of the most important still lifes of nineteenth-century American artist Raphaelle Peale and an exhibition of Michelangelo drawings illustrating the artist's particular interests in the human form and in architecture.

Several important exhibitions opened in November, beginning with "The Pastoral Landscape: The Legacy of Venice," which traced the origin of the pastoral landscape tradition in sixteenth-century Venice through the European artists of the seventeenth and eighteenth centuries. The exhibition included works by Giorgione, Titian, Rembrandt, Claude

Lorrain, and Watteau, among other artists. A second part of the exhibition, "The Modern Vision," shown at the Phillips Gallery, traced the theme to the present day.

"The Art of Paolo Veronese, 1528–1588," commemorated the 400th anniversary of the death of one of the most important artists of the sixteenth century. Fifty paintings and fifty-four drawings on loan from public and private collections worldwide illustrated every aspect of one of the greatest colorists of all time.

In March, to celebrate the completion of two major Canadian architectural projects—the new National Gallery of Canada (NGC) in Ottawa and the Canadian Chancery in Washington, D.C.—the NGC lent ninety master drawings from the fifteenth to the nineteenth centuries, including works by Dürer, Rubens, Fragonard, Goya, Ingres, Constable, Cézanne, and Van Gogh. Also opening in March was an exhibition of "Treasures from the Fitzwilliam Museum," a selection of more than 160 objects from the Cambridge museum considered to be one of Europe's preeminent small museums. In addition to paintings by Titian, Hogarth, Delacroix, Rubens, Hals, Van Dyck, Renoir, and Degas, the exhibition included illuminated manuscripts, porcelains, coins and medals, bronzes, and decorative arts.

With nearly four hundred original black-and-white and color photographs from public and private collections worldwide, the exhibition "On the Art of Fixing a Shadow: 150 Years of Photography" traced the history of photography as a fine art. The exhibition was organized chronologically and was divided into four sections—The Pencil of Nature (1839–1879), The Curious Contagion of the Camera (1880–1918), Ephemeral Truths (1919–1945), and Beyond the Photographic Frame (1946–present).

Two great American private collections were shown during the summer. "Still Lives of the Golden Age: Northern European Paintings from the Heinz Family Collection" included forty-four Dutch, Flemish, and German still lifes from the late sixteenth century to the early eighteenth century. The paintings are characterized by lavish *trompe l'oeil* depictions of flowers and unfinished meals that convey moral and religious messages through the *vanitas* symbolism of the transience of life. An exhibition of sixty-three paintings by nineteenth-century American artists lent by Mr. and Mrs. Richard A. Manoogian contained an impressive range of American art, including Hudson River landscapes, *trompe l'oeil* still lifes, genre scenes, impressionist landscapes, and figure paintings by Cole, Church, Bingham, Bierstadt, Heade, Harnett, Eakins, Cassatt, and Chase, among others.

A small exhibition was devoted to the development of the color prints of Mary Cassatt, illustrating in 120 works the artistic process through preparatory drawings, rare and sometimes unique black-and-white or color trial states, and color variations of the final prints.

Through 130 prints, 10 drawings, and 10 illustrated books, "Italian Etchers of the Renaissance and Baroque" explored the development of the etching medium in Italy from the beginning of the sixteenth century to the end of the seventeenth century. The show featured such well-known Italian artists as Parmigianino, Federico Barocci, Annibale Carracci, Stefano della Bella, and Salvator Rosa, as well as important foreign artists who worked in Italy, such as Jusepe de Ribera, Jacques Callot, and Claude Lorrain. To celebrate the tenth anniversary of the opening of the East Building, the reinstallation of the National Gallery's twentieth-century collections continued. The installation, containing more than two hundred paintings, sculptures, and works on paper, includes many recent acquisitions never before exhibited at the gallery and special loans of related works of art. Occupying 30,000 square feet on three of the five levels in the East Building, it will remain on view for two years.

Education Programs

The Department of Public Programs in the Education Division offered a variety of services to local, national, and international audiences. The Art Information Service, unique among American museums, answered a total of 1,611 telephone and written inquiries of which 87 were from abroad.

In addition to the five regularly scheduled daily tours of the collection, the department presented a fourteen-session history of art slide lecture course. Special topic tours on "The Elements of Design," "Renaissance Art," and "Castles" were offered to children in kindergarten through grade six by more than 240 volunteer docents who are trained by the professional staff. A children's self-guided tour of the exhibition of daimyo art from Japan was also produced. Programs lasting an hour and a half were held on Saturday morning during the school year for children aged six through twelve accompanied by their parents. During the "Japan" exhibition, there were demonstrations of Japanese calligraphy and the use of masks in the Nô drama.

In April, to celebrate the exhibition marking the tenth anniversary of the East Building, there were two performances by the Amherst Ballet Theater Company of a ballet

based on the circus themes from Henri Matisse's *Jazz*, a series of prints and paper cutouts.

In response to a growing interest in the inclusion of art in the school curricula, staff developed six Saturday teacher workshops that included specially prepared written materials as part of an ongoing series. A packet of materials for use in the classroom was produced for sixteen exhibitions, with emphasis on the Japan exhibition and American and Renaissance art. A summer institute on American art was offered for the first time to teachers from across the nation. Three week-long sessions included slide lectures, gallery talks, and visits to other galleries and historic sites in the Washington, D.C., area.

Three special four-part courses by guest lecturers complemented the "Michelangelo Drawings," "Japan," and "150 Years of Photography" exhibitions. Also, a two-day weekend program with eleven guest speakers was offered in conjunction with the "Japan" exhibition.

Two graduate lecturing fellows each gave twenty-four gallery talks in the first year of this program. The fellowship program has been renewed for fiscal year 1990.

The A. W. Mellon Lecture Series was given by Oleg Grabar, the Aga Khan professor of Islamic art and architecture at Harvard University's Department of Fine Arts. Professor Grabar delivered six lectures titled "Intermediary Demons: Ornament as Mediation."

Acquisitions

This year the gallery received new acquisitions for a wide range of collections. Several major works were added to the twentieth-century collection: a bequest of two paintings, the synthetic-cubist style *Harlequin Musician* (1924) by Picasso and the hauntingly somber *Woman Seated in an Armchair* (1940) by Matisse, as well as the polished bronze *Bird in Space* (1927) by Brancusi. The gallery purchased its first painting by dada artist Francis Picabia, *Machine Turn Quickly*. One of the artist's most beautiful works, it depicts machine imagery with a subtle delicacy using gouache and metallic paint.

Other additions to the twentieth-century collection were five paintings by Barnett Newman, gifts of the artist's widow; two *Rock Settees*, sculpted by Scott Burton from mottled pink granite and mottled green granite; the wooden *Brushstroke Chair* and *Brushstroke Ottoman* by Roy Lichtenstein; and an untitled painting by Ad Reinhardt, an unusual example of his work immediately prior to his "color-brick"

paintings of the late 1940s.

A gift of a sumptuous seventeenth-century still life by Dutch artist Abraham Mignon was a welcome addition to the gallery's small collection of still lifes. An imposing canvas by Benjamin West titled *The Expulsion of Adam and Eve from Paradise* (1791) is a recently rediscovered major representation of the artist's later romantic phase. The painting is of particular historical significance because it is the first of his series of paintings on the theme of Revealed Religion commissioned by King George III for the Royal Chapel at Windsor Castle. The work was never delivered and, after the deaths of both George III and the artist, ownership was returned to West's sons by George IV. The sculpture collection was enhanced by a bequest from Mrs. Lessing Rosenwald of two bronze horses by Degas, *Study of a Mustang* and *Horse Walking*. Posthumously cast from wax studies found in the artist's studio at his death in 1917, they demonstrate his interest in antique and Renaissance art.

A further addition to the sculpture collection was a fine bronze by seventeenth-century French baroque artist Michael Anguier titled *Ceres Searching for Persephone*.

Several groups of prints and drawings were added to the graphics collection. The Gemini Archive was increased by 155 prints of the 1980s done by eighteen artists. A fine Hirschvogel landscape and three color aquatints by Mary Cassatt were among items in the bequest from Edith Rosenwald. The photography collection was expanded by a gift of fifty-seven of Walker Evans's subway photographs from 1939-1941.

The Circle of the National Gallery made possible the purchase of a beautiful Parmigianino sanguine of *Three Feminine Heads* and a Perino del Vaga study for an altarpiece. Other support was found for the purchase of a newly discovered early Watteau fan design, *A Fête Galante with Falconers*, and two nineteenth-century drawings, a watercolor by David Cox titled *Mountain Heights, Cader Idris*, and Edward Coley Burne-Jones's sepia study of *Ariadne*, intended for the decoration of John Ruskin's house. Other outstanding purchases of drawings included a large Goltzius from 1595 of *The Holy Family with Saint Elizabeth and Saint John the Baptist* and two fine Guercinos, a red chalk study for the gallery's painting *Amnon and Tamar* and a *Landscape with a Large Waterfall*.

Especially rare and beautiful prints purchased during the year were a particularly fine impression of *Saint Jerome* working hard at his desk, by the Renaissance Italian artist Barbari; an excellent impression of Bellange's *Blind Hurdy*



Still Life with Fruit, Fish, and a Nest (ca. 1675), by Abraham Mignon, German, 1640–1679, was a gift (partial and promised) of H. John Heinz III. National Gallery of Art.

Gurdy Player; and a special proof of *Mother and Child* by Kollwitz, overworked by the artist with graphite, black chalk, and gold paint. Purchases of illustrated books included an extremely rare complete set of eighteen volumes of Cochin and Gravelot's *Almanach iconologique* in contemporary red Morocco, a sketchbook by Eugène Burnand, also bound in Morocco, including a series of wry drawings about the vagaries of plein-air painting.

A highlight of the year was the announcement of a pledge of a gift of an outstanding Van Gogh still life of white roses from Pamela Harriman, widow of statesman W. Averell Harriman. The gift will be in honor of the gallery's celebration of its fiftieth anniversary in 1991. An exhibition devoted to such gifts is in the planning stages, and it is hoped that the example of Mrs. Harriman's great generosity will inspire further donations of works of art in honor of this milestone in the gallery's history.

Center for Advanced Study in the Visual Arts

During its ninth year, the Center for Advanced Study in the Visual Arts continued its programs of fellowships, meetings, publications, and research. There were six senior fellows, twelve visiting senior fellows, one associate, a gallery curatorial fellow, two postdoctoral curatorial fellows, and twelve predoctoral fellows for the 1988-1989 academic year. The Kress professor for the academic year was the distinguished French scholar, Sylvie Beguin.

The center convened seminars, symposia, colloquia, and lectures on various themes in the history, theory, and criticism of art, architecture, and urbanism. Three symposia were held this year in conjunction with exhibitions at the gallery: "Michelangelo Drawings," "Art and Power in Seventeenth-Century Sweden," and "The Pastoral Landscape." Other symposia included "The Architectural Historian in America," "The Artist's Workshop," and "The Middle Atlantic Symposium in the History of Art." The center also held a program of lectures titled "American Art around 1900: Lectures in Memory of Daniel Fraad, Jr." Many of these gatherings were cosponsored with other institutions in the Washington, D.C., area and elsewhere.

A series of seminars was presented: "Veronese Reconsidered"; "Cézanne: The Early Years, 1859-1872"; and "Medieval Ornament." Eight colloquia were presented by resident senior fellows over the year. In addition, the center sponsored two lectures by distinguished art historians Emily

Vermeule (Harvard University) and Terisio Pignatti (Civici Museum Veneziani d'Arte e di Storia).

As part of the publications program, this year saw the appearance of *Center 8*, the annual record of the scholarly events and research of the preceding year, and *Sponsored Research in the History of Art 8, 1987-1988 and 1988-1989*, a directory of art history research projects supported by granting institutions in the United States and abroad. Publication of the proceedings of center symposia in the gallery's *Studies in the History of Art* continued with volume 22, *Italian Plaquettes*.

In addition to these ongoing activities, the center continued to develop relations with other scholarly institutions and to strengthen communication with kindred organizations, both locally and nationally, through periodic meetings of the Association of Research Institutes in Art History, the Washington Collegium for the Humanities, and the Consortium of Washington Area Universities.

Special Exhibitions

"Gauguin Drawings from the Armand Hammer Collection." Continued from the previous fiscal year to October 23, 1989. Coordinated by Andrew Robison.

"Michelangelo: Draftsman/Architect [Part I and II]." October 8, 1988, to December 11, 1988. Coordinated by David Alan Brown. Supported by Olivetti Company and the Federal Council on the Arts and the Humanities.

"Raphaelle Peale Still Lifes." October 16, 1988, to January 29, 1989. Coordinated by Nicolai Cikovsky, Jr. Supported by the Pew Charitable Trusts and the Circle of the National Gallery of Art.

"Japan: The Shaping of Daimyo Culture, 185-1868." October 30, 1988, to January 23, 1989. Coordinated by D. Dodge Thompson. Supported by R. J. Reynolds Tobacco Company, the Yomiuri Shimbun, Nomura Securities Company, Ltd., and the Federal Council on the Arts and the Humanities.

"The Art of the Tea Ceremony." October 30, 1988, to January 23, 1989. Coordinated by D. Dodge Thompson. Supported by the Asahi Shimbun, the Yabunouchi School of Tea, the Nomura Securities Company, Ltd., and All Nippon Airways.

"The Pastoral Landscape: The Legacy of Venice." November 6, 1988, to January 22, 1989. Coordinated by Beverly Louise Brown. Supported by Ford Motor Company, the Morris and Gwendolyn Cafritz Foundation, and the Federal Council on the Arts and the Humanities.

"Nineteenth-Century Drawings from the Armand Hammer Collection." November 6, 1988, to April 23, 1989. Coordinated by Judith Brodie.

"The Art of Paolo Veronese, 1528–1588." November 13, 1988, to February 20, 1989. Coordinated by Beverly Louise Brown. Supported by the Ford Motor Company and the Federal Council on the Arts and the Humanities.

"Twentieth-Century Art: Selections for the Tenth Anniversary of the East Building." December 4, 1988, to December 31, 1990. Coordinated by Jack Cowart and Nan Rosenthal. Supported by the American Express Company.

"Cézanne: The Early Years, 1859–1872." January 29, 1989, to April 30, 1989. Coordinated by Charles S. Moffett. Supported by Gerald D. Hines Interests.

"Master Drawings from the National Gallery of Canada." March 5, 1989, to May 21, 1989. Coordinated by Diane De Grazia. Supported by the Belzberg Family.

"Treasures from the Fitzwilliam Museum: The Increase of Learning and Other Great Objects." March 19, 1989, to June 18, 1989. Coordinated by Beverly Louise Brown. Supported by Philip Morris Companies, Inc.

"On the Art of Fixing a Shadow: 150 Years of Photography." May 7, 1989, to July 30, 1989. Coordinated by Sarah Greenough. Supported by Eastman Kodak Company.

"Still Lives of the Golden Age: Northern European Paintings from the Heinz Family Collection." May 14, 1989, to September 10, 1989. Coordinated by Arthur K. Wheelock, Jr.

"Drawings of Landscape and Architecture from the Armand Hammer Collection." May 28, 1989, to November 26, 1989. Coordinated by Diane De Grazia.

"American Paintings from the Manoogian Collection." June 4, 1989, to September 4, 1989. Coordinated by Nicolai Cikovsky, Jr. Supported by United Technologies Corporation.

"Mary Cassatt: The Color Prints." June 18, 1989, to August 27, 1989. Coordinated by Margaret Morgan Grasselli.

"Italian Etchers of the Renaissance and Baroque: Parmigianino to Giordano." September 24, 1989, to November 26, 1989. Coordinated by H. Diane Russell. Supported by Mellon Bank.

Reading Is Fundamental, Inc.

Mrs. Elliot Richardson, Chairman
Ruth Graves, President

For twenty-three years, Reading Is Fundamental, Inc. (RIF) has promoted literacy by giving young people the chance to have their own books. Since the program began, more than ninety-three million books have been distributed to children throughout the nation, and the number is expected to reach a hundred million by the end of 1989.

Through the efforts of more than 96,000 volunteers, RIF reached 2.3 million young people last year in all fifty states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. RIF programs can be found in more than 11,000 locations—including schools, migrant worker camps, libraries, housing projects, day-care programs, juvenile detention centers, Indian reservations, shelters for the homeless, hospitals, and community centers.

Part of RIF's mandate is to work with parents to encourage reading in the home. Since its Parents Services Program was inaugurated in 1984, RIF has distributed nearly a million copies of its publications for parents and has held informational "Growing Up Reading" workshops for parents in thirty-four cities.

As a nonprofit literacy organization, RIF is supported by corporations, foundations, private citizens, and a federal contract.

1989 Programs for Young Readers

The Year of the Young Reader, initiated by outgoing President Ronald Reagan, is dedicated to developing programs for new groups of young readers. To realize this goal, RIF and the Chesapeake Regional Association of Booksellers organized a book drive for homeless children that brought more than twenty thousand books to children in fifty-six shelters, soup kitchens, and housing projects in the Washington, D.C., and northern Virginia area.

Other programs started this year include one sponsored by J.C. Penney Company, called "Expanding Horizons," which helps fund RIF projects in Hispanic communities. The New York Life Foundation is providing a grant that will enable RIF to bring books to 30,000 Native American children at 163 sites—from a Sioux community on the Great Plains to a project in Honolulu serving Native Hawaiians.

Under a new program called RUNNING START funded by the Chrysler Corporation Fund, RIF will bring reading activities and books to more than 100,000 first graders over a three-year period. Chrysler Chairman Lee Iacocca, who announced the new program, said that RUNNING START is the "largest commitment ever made by the fund to a single

project."

The reading needs of children considered at risk are being addressed through a grant from the John D. and Catherine T. MacArthur Foundation. Working with eight community groups, RIF has developed a range of programs, including book activities for teenage mothers, radio programs and billboards that advertise reading, lending libraries for textile workers, and bilingual story hours.

Less than one year ago, RIF and a coalition of civic leaders in Chattanooga, Tennessee, set out to build a model community reading program called "City of Readers." Today, that program is flourishing and will continue through 1990. "City of Reader" initiatives encompass everything from a Family Reading Fair to an Executive Spelling Bee sponsored by the *Chattanooga Times*. The model program has been promoted throughout southeast Tennessee through television, newspapers, and messages distributed by food stores and fast-food chains.

RIF's annual winter reading campaign, "In Celebration of Reading," offered young people the incentive to become a "National RIF Reader" as a way to encourage leisure reading. More than half a million youngsters became active readers through this program.

Participation in the annual RIF National Poster Contest was also at an all-time high, with nearly half a million young artists submitting entries depicting "The Joy of Reading."

"Reader Roundup," a program designed to bring RIF books and activities to every fifth grader in Anderson County, South Carolina, was organized last year by the South Carolina newspaper *Independent Mail*. Inspired by the Orlando *Sentinel's* Reading Roundup program "Reader Roundup" is targeted to fifth graders on the theory that this is a critical age for reinforcing reading habits. The Orlando program entered its second year, bringing books to twenty thousand fifth graders in six Florida counties.

1989 Highlights

RIF conducted its thirty-third "Growing Up Reading" workshop for parents in Prince George's County, Maryland, which featured Walter Dean Myers, author of more than thirty books for children and young adults. A one-time high school dropout, Myers told the audience how learning to read enabled him to reenter school as an adult and pursue a distinguished writing career. The program was sponsored by the Hitachi Foundation.

First Lady Barbara Bush joined in celebrations for RIF



Mrs. George Bush reads to children from Reading Is Fundamental projects. (Photograph by Rick Reinhard)

Week by hosting a special event in honor of RIF at the White House on April 27, which was attended by more than two hundred children from area RIF projects and homeless shelters. In addition to the annual ceremony honoring the RIF Poster Contest winner and the National RIF Reader, there were also performances by Ringling Bros. and Barnum & Bailey acrobats, jugglers, and clowns.

The International Reading Association (IRA) paid special tribute to RIF when it presented its International Reading Association Literacy Award to RIF President Ruth Graves during the IRA annual conference in New Orleans in May. RIF book activities also attracted several visitors from abroad, including Queen Noor of Jordan and Mrs. Hosni Mubarak, wife of the president of Egypt.

RIF and the Private Sector

The Year of the Young Reader ushered in a variety of initiatives on behalf of RIF, including a See and Read month sponsored by LensCrafters, a Jimmy Dean Book Drive for RIF, a Clorox RIF Sweepstakes, and a General Electric Learn about America Contest.

Other RIF benefits included a bridge tournament sponsored by Epson America that lined up U.S. congressmen against corporate executives; a concert featuring renowned violinist Itzhak Perlman and sponsored by Paine Webber; an exhibition of animated art from the film "Who Killed Roger Rabbit?" sponsored by Sotheby's and Walt Disney; and an

authors' auction sponsored by the Capital Press Women's Club. To focus public attention on reading, the Texas Rangers declared its May 4 game with the New York Yankees as RIF Night at Arlington Field.

In the past, people from the publishing community confined their involvement with RIF to providing discounted books and services to projects. But in recent years, many publishers have extended that support to include a variety of promotions on behalf of RIF. This year, Waldenbooks sponsored a summer readathon to benefit RIF, in addition to continuing with its other RIF promotions, including in-store canister collections, the sale of a poster by Muppets creator Jim Henson, and the annual Waldenbooks RIF sports tournament in September, for which members of the book community pay to play golf, tennis, and other sports.

A number of other publishers and bookstores made donations to RIF based on sales, including Antioch Publishing Company in Yellow Springs, Ohio; the New York City bookstore Books of Wonder; Simon & Schuster/Prentice-Hall; Bantam Doubleday Dell; Cambridge University Press; and Oxford University Press.

Four new brochures—"Summertime Reading," "Encouraging Young Writers," "Family Storytelling," and "Starting a Family Library"—were produced for RIF's Parent series, bringing the total to twelve. The series, which is underwritten by private grants, contains tips for parents on everything from how to introduce a preschooler to books to how to turn teenagers into readers.

Woodrow Wilson International Center for Scholars

Charles Blitzer, Director

The Woodrow Wilson International Center for Scholars commemorated its twentieth anniversary this year as a presidential monument that fosters scholarship in the humanities and the social sciences with a formal dinner at the Department of State. President Bush, who was introduced by Secretary of State James Baker, spoke of the value of nonpartisan collaboration between academics and policy-makers and honored the Wilson Center's commitment to serious scholarship in the nation's capital. Senator Daniel Patrick Moynihan spoke about President Wilson's quest for legitimacy in the world order, which is a cornerstone of the center's mission. The evening exemplified the center's mandate to be a bridge between the world of learning and the world of affairs. Guests included members of Congress, leaders of the business community, presidents of area universities, and current Wilson Center fellows.

The center's Board of Trustees was pleased to welcome James Baker back for his twelfth year as a member of the board, this time in his *ex officio* position as secretary of state. William J. Baroody was appointed to another term as board chairman, and Dwayne Andreas, a friend of the center since its founding and a member of the board since 1987, was appointed vice chairman. Secretary of Health and Human Services Louis Sullivan joined the board as an *ex officio* trustee. A new member from the private sector, Robert Tuttle of California, was appointed by President Reagan. The government service of two *ex officio* trustees, George Shultz and Otis Bowen, ended this year, and the six-year term of Vice Chairman Robert Mosbacher ended just before he became secretary of commerce.

Throughout the year, the Wilson Center's advisory body of distinguished private citizens, The Wilson Council, supplied invaluable guidance and support. John J. Powers retired as chairman of the Wilson Council after nine years of exemplary service. He was succeeded by Vice Chairman Stanley Klion, who brings outstanding enthusiasm, experience, and ability to the position.

The Board of Trustees, the director, and staff addressed major issues concerning the intellectual and organizational structure of the center this year. In October, the trustees approved major changes in the fellowship selection process that will extend the normal term of fellowship appointments and time them to coincide more directly with the academic year. With the encouragement of Director Charles Blitzer, the center's programs placed increased emphasis on issues that cut across regional boundaries.

The complicated process of selecting a permanent site for

the center continued during the year; the most promising potential site is the International Cultural and Trade Center complex scheduled to be built on Pennsylvania Avenue. Discussions concerning specific architectural plans are currently under way.

Fellows

The Woodrow Wilson Center's quest for knowledge begins with its fellows, who are chosen through a rigorous international competition. Fellows' research represents the world's best thinking on subjects ranging from international security to American culture, Russian studies to Pacific Rim concerns. Among the topics fellows studied this year were the legacy of Vietnam during the Reagan years, the changing Soviet citizen, the new city of the twentieth century, a history of Russian literature, the American perception of the Japanese aesthetic, the external dimension of ethnic conflict and its control, East-West relations in the global system, and Prague between the wars.

Programs and Meetings

The programs of the Woodrow Wilson Center sponsored an ambitious series of meetings and research in 1989. One highlight of the year was the October visit by Soviet physicist and Nobel Prize-winner Andrei Sakharov, who met with a small group of fellows, journalists, and government officials to discuss Soviet leadership and policies. In May, former fellow Bronislaw Geremek previewed the Polish elections before a center audience. A specialist on medieval peasant life, Dr. Geremek became Solidarity's floor leader in the Polish Parliament.

Major international conferences and special events held at the center during the year included programs on criticism of American culture, the Middle East in the mind of America, the politics of the environment in Eastern Europe, government and the growth of economic knowledge, Congress and the courts, the connection between literature and political understanding in Latin America, Chinese intellectuals and the prospects for political reform, and the making of U.S. foreign and defense policies.

Three of the center's programs came under new leadership this year. Mary Brown Bullock, now heading the Asia Program, is a China expert who formerly directed the Committee on Scholarly Communication with the People's Republic of China of the National Academy of Sciences.

Blair Ruble, formerly of the Social Science Research Council and an expert on Soviet research institutes, was chosen to direct the Kennan Institute for Advanced Russian Studies. Joseph S. Tulchin, a senior scholar in the field of Argentine history and politics, came from the University of North Carolina at Chapel Hill to head the Latin American Program. He succeeds William Glade, who has been named associate director of the U.S. Information Agency in charge of educational and cultural affairs.

Publishing and Outreach

Through publications and a nationally distributed radio program, the ideas generated at center meetings and by fellows' research are made accessible to both specialists and the general public. The center's outreach activities continued to provide bridges between the world of scholarship and the world of public affairs.

In 1989, the Wilson Center inaugurated the Woodrow Wilson Center Series, a group of books published in collaboration with Cambridge University Press. Two volumes, *Religion and Twentieth-Century American Intellectual Life* and *The Truman Presidency*, both edited by Michael J. Lacey, were published in late summer.

In its second year of operation, the Wilson Center Press published two important volumes. *American Media: The Wilson Quarterly Reader*, edited by Philip S. Cook, Douglas Gomery, and Lawrence W. Lichty, is a collection of essays examining literacy, newspapers, movies, television, and advertising to assess the effects of the media on life in the United States. The *Scholars' Guide to Washington, D.C.*, for *Southwest European Studies*, by Joan F. Higbee, is the thirteenth book in the series of guides of the city's resources.

In June, the center launched an expanded newsletter that is designed to provide more information about center activities to friends and supporters. A monthly "Calendar" highlighting events continued to alert more than five thousand readers to the wide range of scholarly meetings held at the center.

Under the direction of George Seay, the Wilson Center's "Radio Dialogue" aired a full schedule of programs during the year. Broadcast through National Public Radio satellite and the Longhorn Radio Network, "Radio Dialogue" brings weekly interviews with center Fellows and staff to a broad national audience. With a new production studio and enhanced distribution capabilities, "Radio Dialogue" can now be heard from Cape Cod, Massachusetts, to Honolulu, Hawaii.

The fruits of research by the center's fellows were appar-



Director Charles Blitzer welcomes President Bush to the Woodrow Wilson Center's Twentieth Anniversary Dinner. Mrs. James A. Baker III and Board Vice Chairman Dwayne Andreas look on.

ent in awards and publications in 1989. *A Bright Shining Lie: John Paul Vann and Vietnam*, written by Neil Sheehan, was awarded the Pulitzer Prize for General Nonfiction. Mr. Sheehan conducted the research for his book while he was a fellow at the center in 1979-1980. Other books published in 1989 by fellows and guest scholars during the year resulting from their work at the center include the first volume of the biography *Harold MacMillan*, by Alistair Horne; *The Pure Concept of Diplomacy*, by Jose Calvet De Magalhães; *A Call to Civic Service: National Service for Country and Community*, by Charles C. Moskos; and *From Beirut to Jerusalem*, by Thomas Friedman.

Peter Braestrup, the founder of the *Wilson Quarterly*, left the magazine this year to assume new duties at the Library of Congress. Under his leadership, the *Wilson Quarterly* became the most widely read quarterly magazine in the country. He was succeeded by Jay Tolson, the magazine's literary editor. Warren Syer was named the new publisher; his outstanding experience and business acumen have already produced dramatic results.

In his salute to the Woodrow Wilson Center last March, President Bush said: "The Wilson Center is known as a vital point of contact between the thinkers and the doers of this country. We're going to depend more than ever on the counsel of learned men and women in a world that is changing rapidly, a world interconnected as never before in history." The Woodrow Wilson Center's activities in this twentieth anniversary year represented its best effort to meet the president's challenge.

Under Separate Boards of Trustees

John F. Kennedy Center
for the Performing Arts

National Gallery of Art

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*Secretary's Management Committee

**The assistant secretaries for research and museums collaborate in the oversight of scholarly and presentational activities in these bureaus and offices

July 1989

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Cover: This five-month-old golden lion tamarin, Z, is one of twins born in the wild of a female tamarin named Vera, who was raised at the National Zoological Park. Vera was reintroduced into the wild in Brazil as part of the Zoo's ongoing reestablishment program for the endangered golden lion tamarin. Z herself has since had four offspring born in the wild. (Photograph by Jessie Cohen)

Frontispiece: The "Boy with Sword" fountain from the Office of Horticulture Garden furniture collection was installed in the Arts and Industries Building Rotunda during 1989. (Photograph by Dane Penland)

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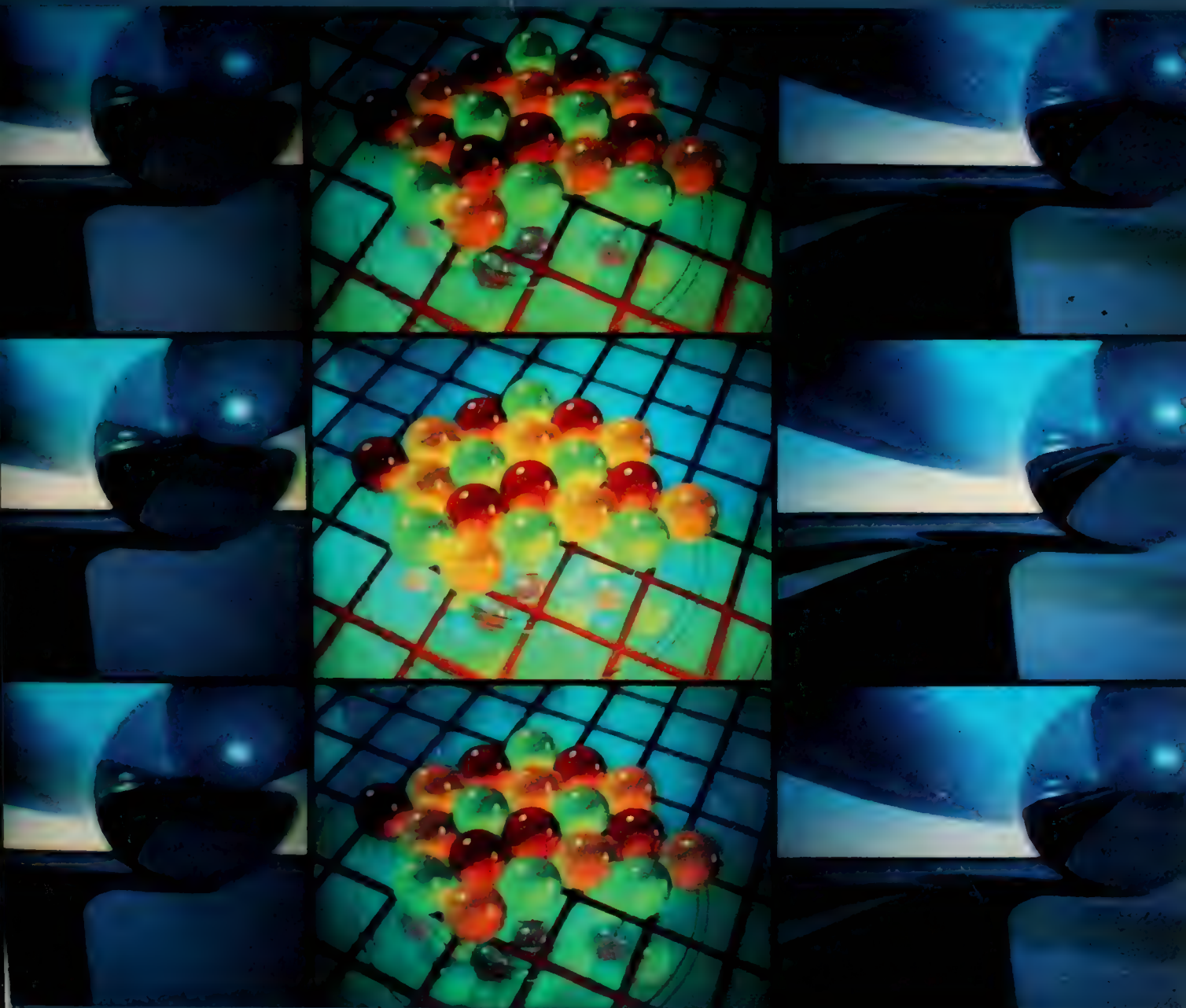
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Smithsonian Year

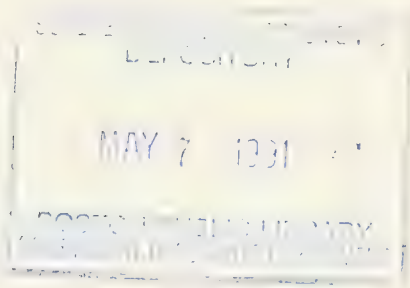
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Smithsonian Year 1990, S/N ...

1990



Smithsonian Year 1990





Smithsonian Year *1990*

Annual Report of the Smithsonian Institution for the Year Ended
September 30, 1990



The ROSAT satellite, a joint FRG-UK-US space observatory for X-ray astronomy, was launched from Cape Canaveral, Florida, on June 1, 1990. The satellite is equipped with a high-resolution imaging camera built at the Smithsonian Astrophysical Observatory. (National Aeronautics and Space Administration photograph) Inset: Stephen Murray (left), head of the Harvard-Smithsonian Center for Astrophysics ROSAT science data center, and Martin Zombeck, project scientist, demonstrate a computer program that will give scientists the sharpest images of X-ray sources available to date. (Photograph by Joe Wrinn, courtesy of *Harvard Gazette*)

Contents

- Smithsonian Institution 7
 Statement by the Secretary 9
 Report of the Board of Regents 35
 Benefactors 37
 Financial Report 45
- Research 73
 International Center 74
 Joseph Henry Papers 78
 National Zoological Park 79
 Office of American Studies 84
 Office of Fellowships and Grants 85
 Office of Interdisciplinary Studies 87
 Smithsonian Astrophysical Observatory 89
 Smithsonian Environmental Research Center 92
 Smithsonian Institution Archives 94
 Smithsonian Institution Libraries 96
 Smithsonian Tropical Research Institute 101
- Museums 107
 Anacostia Museum 109
 Archives of American Art 110
 Arthur M. Sackler Gallery 111
 Conservation Analytical Laboratory 113
 Cooper-Hewitt National Museum of Design 115
 Freer Gallery of Art 116
 Hirshhorn Museum and Sculpture Garden 118
 National Air and Space Museum 119
 National Museum of African Art 123
 National Museum of American Art 125
 National Museum of American History 128
 National Museum of Natural History/National Museum of Man 134
 National Museum of the American Indian 140
 National Portrait Gallery 142
 Office of Exhibits Central 144
 Office of Horticulture 145
 Office of Museum Programs 147
 Office of the Registrar 148
 Smithsonian Institution Traveling Exhibition Service 148
 Smithsonian Internship Council 150
- Public Service 151
 National Science Resources Center 153
 Office of Elementary and Secondary Education 155
 Office of Folklife Programs 156
 Office of Public Affairs 159
 Visitor Information and Associates' Reception Center 161
- External Affairs 163
 Media Projects 165
 National Demonstration Laboratory for Interactive Educational Technologies 165
 Office of Membership and Development 166
 Women's Committee of the Smithsonian Associates 169
 Smithsonian National Associate Program 170
 Smithsonian Resident Associate Program 174
 Office of Congressional Liaison 178
 Office of Special Events 179
 Office of Telecommunications 179
 Smithsonian Institution Press 181
 Smithsonian Magazine 182
 Air & Space/Smithsonian Magazine 183
 "Smithsonian World" 184
- Institutional Initiatives 185
- Administration 187
 Administrative and Support Activities 188
 Smithsonian Institution Women's Council 192
- Under Separate Boards of Trustees 193
 John F. Kennedy Center for the Performing Arts 194
 National Gallery of Art 198
 Reading Is Fundamental, Inc. 204
 Woodrow Wilson International Center for Scholars 207
- Organization Chart 210

Smithsonian Year 1990 Supplement, containing the Chronology and Appendixes 1-8, is published in a microfiche edition of photomechanically reproduced typescript provided by the individual bureaus and offices of the Smithsonian Institution. The appendix contents are as follows:

Appendix 1. Members of the Smithsonian Councils, Boards, and Commissions

Appendix 2. Visitors to Smithsonian Institution Museums

Appendix 3. Academic, Research Training, and Internship Appointments

Appendix 4. Publications of the Smithsonian Institution Press

Appendix 5. Publications of the Staff of the Smithsonian Institution

Appendix 6. The Smithsonian Institution and Its Subsidiaries (*staff lists*)

Appendix 7. Donors to the Smithsonian Institution

Appendix 8. Contributing Members of the Smithsonian Institution

Please address requests for copies of the microfiche edition of the *Supplement* to

Alan Burchell, Production Coordinator

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SMITHSONIAN INSTITUTION

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." After receiving the property and accepting the trust, Congress incorporated the Institution in an "establishment," whose statutory members are the president, the vice president, the chief justice, and the heads of the executive departments, and vested responsibility for administering the trust in the Smithsonian Board of Regents.

The Establishment, September 30, 1990

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William H. Rehnquist, Chief Justice of the United States

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September 30, 1990

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Nancy D. Suttentfield, Acting Under Secretary (from September 2, 1990)

Statement by the Secretary

Robert McC. Adams

Now, as at all times in the past, we at the Smithsonian face an array of compelling, but to some degree conflicting, programmatic alternatives. As we weigh choices among them, their potential impact is a major consideration. But impact on what, on whom? On our national well-being? On the worldwide advancement of knowledge or human welfare? On tolerance and mutual respect among nations and peoples? Or to gain greater confidence in what we are measuring, should our concern for impact be focused closer to home—on improving the understanding and participation of our immediate audiences, and on diversifying our staff and programs better to reach those audiences?

Whichever of these directions we choose, there are in any case good arguments for focusing on the impacts of our programs. An emphasis on impact highlights the important qualities of accountability and immediacy. It avoids seeking refuge in received wisdom in order to

shield a program from the open marketplace of debate and criticism. And it places a premium on *new* undertakings that respond to current opportunities, problems, demands, or methodologies.

Yet impact cannot serve alone as the determinant of what the Smithsonian must do. Who can say with confidence how much of whatever is today viewed with great hope and excitement will be so viewed tomorrow? We must not forget that the Institution's well-established strengths and areas of programmatic responsibility have withstood the demanding test of time.

There is no simple balance to be struck between these seemingly opposing considerations of tradition and modernity. Neither is quite so unambiguous and clear-cut a programmatic choice as it may seem. There is nothing inexorable about the way the future develops out of the past. The dominant direction of movement can double back upon itself or enter blind alleys and



Pina Lopez-Gay, vice president of the Spanish National Quincentenary Commission, joins Secretary Robert McC. Adams in fielding questions at the signing of a Columbus Quincentenary accord with Spain on February 13 in Madrid. (Photograph by Santos Cirilo, courtesy of El Pais)

The American Indian Theatre Company of Oklahoma performed at the January Martin Luther King, Jr., Holiday Celebration. The event is sponsored annually by the Smithsonian's Cultural Education Committee. (Photograph by Rick Vargas)



have to be abandoned. As we all know, most predictions are flawed. Yet it is no more credible merely to resist or deny change. The old criticism of the Bourbons still has fire, that in forgetting nothing they ensured that they would also learn nothing. All we can do is to carefully weigh the continuing contribution of what is old and the risk, as well as the promise, of what is new—and then resolutely move ahead. To echo the old rabbinical text, it is not our part to finish the task, but neither are we free to desist from it.

I would like to share with you a splendid example of how the traditional and the modern often unexpectedly come together in our business. The noted biologist Jared Diamond gives heartening support in a recent article in the journal *Nature* to a contribution that only museum collections like many of ours can make. For an unappetizing but systematic collection of dead rats in particular, he observes that

[o]ld specimens constitute a vast, irreplaceable source of material for directly determining historical changes in gene frequencies. Until [the polymerase chain reaction] became available, those data were lost forever as soon as the gene-bearing individual died. Now, however, museums with large, well-run collections of specimen series large enough for statistical analysis will be at the forefront of research in molecular evolution.

In addition, lying in wait just beyond the confines of our own, intramural field of discussion of options are choices that others may perceive—and sometimes may indeed have some influence in making for us. Harsh

budgetary reductions, not to be confused with the softer and subtler influences of an atmosphere of constraint on growth, are one example. But it is noteworthy that the threat of these reductions sharply receded after seeming very large for a time during the difficult congressional debates in the summer of 1990.

Hence competing prospects for new museums may provide an example that is more useful in thinking about our choices. Numerous ideas for such projects, apart from those we have generated internally, have repeatedly been put forward as not only plausible but compelling. Advocating them have often been significant groups of scholars, donors, communities, activists, and politicians. During my term of office alone, at least a score of serious proposals that could be so characterized have crossed my desk.

Of all of these, as I am sure you are aware, only the National Museum of the American Indian has at this point received formal congressional authorization and appropriations. It is a pleasure to take note of the convening of its Board of Trustees, broadly representative of Indian people and including other prominent Americans in its membership, and of the appointment of Richard West as its first director. To be sure, we are still at a very early stage in developing this ambitious complex of new museums, collection facilities, and outreach activities. It has only begun to thread its way through the lengthy process of successive appropriations and private fund raising that will be needed for the heart of the whole, unprecedented undertaking to open its doors on the National Mall by the new millennium.

On further reflection, however, the implied ratio of 20 or more serious proposals for every 1 finally adopted is misleading. Almost a quarter of a century elapsed between the formal authorization of the National Air and Space Museum and the first appropriation for its construction. In this light, the building of a great museum might better be described as only the final step, usually preceded by years of efforts to refine and make persuasive the case for it. Planning for the Old General Post Office, across Gallery Place from the National Portrait Gallery, will just begin in fiscal 1991, after the major renovation of that grand but almost derelict building has remained for several years in a similar, unfunded limbo. A major new facility for the National Air and Space Museum, repeatedly approved by our regents for construction at Washington-Dulles International Airport, has yet to advance to the stage of having been authorized. Years of careful negotiations with the U.S. Postal Service preceded the recently announced formal agreement under which the Smithsonian and the Postal Service will collaborate on a new museum that will house our priceless collections in this field.

Taken together, these examples suggest that our cumulative success rate in transforming new ideas into permanent, architecturally embodied realities is better judged on the basis of what is in the whole length of the pipeline than on what is just emerging successfully from the end of it. We need to be mindful, moreover, that many of the best and most interesting suggestions, especially in fields of concern such as cultural diversity, may not involve architectural expression at all. The lesson is simply that the flow of good ideas shows no sign of diminishing. After more or less prolonged study and discussion, an appreciable number continue to find a positive reception. Yet, in aggregate, they will, of course, always far exceed our available resources.

Some degree of tension, therefore, almost always accompanies the choices that must be made. This tension can perhaps be reduced, or at least made more manageable, by delaying expenditures on newer programs. But in the end, decisions on the rate of change and replacement—the rate at which the Smithsonian renews itself—cannot be left entirely dependent on the rate at which programs of relatively declining quality and importance are voluntarily abandoned by their participants. The continued vitality of the Smithsonian, its ca-

capacity to respond to the trust for which it was created, instead requires a conscious, directed, and continuous readiness to weigh *and implement* priorities.

Particularly in these difficult times, old and new needs and opportunities must be viewed against a common background of difficult and uncertain budgetary prospects. Both our federal appropriations, surely affected by the general consensus that has emerged between Congress and the president regarding future annual reductions in the deficit, and our trust funds,



In June, the National Air and Space Museum acquired two of the 2,500 nuclear missiles eliminated by the Intermediate Range Nuclear Forces Treaty. On the left is a Soviet SS-20, on the right an American Pershing II. Both missiles are disarmed training versions.

closely tied to the general state of the U.S. economy, will almost certainly not maintain the same rate of growth they have enjoyed in the past. Clearly, our best response to these somber prospects is to put forward a vision of the Smithsonian's future so compelling to external funders that it enables us at least partly to withstand these negative pressures.

Succeeding in this, however, largely depends on achieving an internal consensus that reaches beyond the separate interests of our component parts and articulates a common vision. Projecting such a vision is the best, if not the only, way to ensure the sustaining breadth and depth of national support that we should never simply take for granted. I am not speaking of a leveling, least-common-denominator consensus, but of an energizing, enabling one that stimulates the creative vitality of the Smithsonian staff and so enhances our national appeal.

We properly take pride in, and feel a responsibility to preserve, the great diversity of things the Institution does and stands for. Each of our museums, for example, maintains a focus and integrity—almost a culture—of its own. Each is largely responsible for preparing the annual budgets that incrementally shape its programs by taking on new initiatives at the expense of existing ones. New interconnections among our museums are surely being found all the time by anyone who views a succession of them from his or her own perspective. But there is no Institutional effort, nor do I feel there should be, to force our bureaus into a common mold. There is no objective, however remote, that the domains in which each museum has developed its staff, collections, and circle of support should somehow be made to intersect so as to provide a smoothly continuous web of coverage. All myths of our universality to the contrary, there are many, many things under the sun that the Smithsonian will never find the means to deal with.

Having conceded that, however, I also have a duty to affirm that the Institution is, and shall remain, more than a loose and undirected clustering of autonomous organisms. Our public, our governing and advisory bodies, and all our sources of support expect that we will articulate a well-coordinated effort that maintains a single and consistent set of priorities. Given budgetary realities, it is only in this way that we can preserve the Smithsonian's strengths, while also rising to the

challenge of an ever-changing mix of new needs and opportunities.

It is always somewhat threatening to hear of the need for establishing priorities in a cultural or intellectual enterprise. Freedom involves not only recognizing alternatives but having realistic opportunities to pursue some and reject others. An unusual degree of freedom of thought and action is a hallmark of the Smithsonian, one that helps to attract a strong and devoted staff in spite of discouraging pay differentials and other deterrents that we are striving to eliminate. Yet in an institutional framework, with the fierce competition for limited resources that always implies, degrees of freedom cannot be endlessly multiplied to meet all expectations. Any setting of priorities implies a system of incentives and constraints that is inherently unsettling because it is both unequal and dynamic in its application.

As a credible step toward setting priorities, it is appropriate to begin by identifying the traditional, central, incontrovertible core of the Institution's responsibilities. It grows directly out of our chartered responsibility for "the increase and diffusion of knowledge." No less importantly, it is, by dint of the annual recycling of the appropriations process, by now more or less permanently emplaced among the major line items in our budget. But I doubt whether there would, in any case, be much dispute about a basic definition of what these basic responsibilities are:

To maintain the condition of our collections and facilities while deepening the public's appreciation and understanding of them through exhibits, research, and publications.

To advance research in those areas—the Smithsonian Astrophysical Observatory, which has recently celebrated its centennial, is one—where the Institution has a special position of leadership and responsibility.

To respect and justify the national support on which we depend by effectively reaching out to increasingly diverse, geographically dispersed audiences.

I must emphasize once again that acknowledgment of this core is not a rationale for persisting in *all* present activities. Maintenance of continuity is an important principle, but so also is a readiness to differentiate between areas of real strength and significance, whether continuing, new, or emergent, and other areas that have ceased to offer challenges and slipped into routine. So let me now turn to programmatic objectives

that, if in no case entirely new, we are giving renewed emphasis and actively seeking new ways to pursue more effectively.

Paramount among these is a broadening and strengthening of the Institution's outreach to all the varied cultural and ethnic groups making up this nation. Having extensively discussed the issue in this setting a year ago, and on many other occasions since then, I will limit my discussion here. I have urged every office and bureau of the Smithsonian to take this objective with utmost seriousness, as I do myself. In fact, on my agenda for early consideration with our new under secretary is the question of establishing an Office of Cultural Education. It would monitor and be able to take initiatives of its own within this area, while being responsible directly to senior management.

The most basic steps to be taken, since they address deficiencies still far short of being fully corrected, involve equality of staff employment at all levels, independent of color, creed, or gender. Significant aspects

of this are, in fact, mandated by law. But the Smithsonian's own tradition of respect for and commitment to cultural conservation requires that our own measures in this direction go beyond merely responding to narrow legal requirements.

Additional responsibilities are imposed by our character as a national institution, dependent on tax resources appropriated in the name of all the people. We cannot lose sight of the importance to those affected of the kind of cultural representation that can be provided in the heart of the nation's capital by our exhibits and educational programs. Accordingly, the inclusive breadth and sensitivity of those programs is a matter of prime importance. Particularly to be commended in this respect is the Sackler Gallery's work with Asian audiences, confronting and learning to overcome the problem of simultaneously improving its relations with very diverse cultural communities.

The annual total of visitors who presumably acquire some familiarity with the Smithsonian is impressively



Glenn Tupper cuts the ribbon at the dedication ceremony in late March of the Earl S. Tupper Research and Conference Center, Smithsonian Tropical Research Institute. Panama's President Guillermo Endara and STRI Director Ira Rubinoff view the ribbon cutting, while STRI employee Monica Alvarado, in traditional Panamanian dress, holds the ribbon. (Photograph by Marcos Guerra)

large. But as our own surveys have shown conclusively, it is a preponderantly white, middle-class, college-educated audience. Minority participation is discouragingly limited. We are unlikely to be more successful in attracting underserved groups unless we recognize our own limitations in conceptualizing as well as implementing programming on their behalf. Our best means of moving forward would seem to be through intensified dialogue with fellow scholars and museum professionals working elsewhere with the same interests. Perhaps equally important are greater, more consistent efforts at networking that establish a durable basis of understanding and cooperation with schools, church groups, community organizations, and the media. An exemplary effort along these lines is the advisory com-

mittee that has been meeting under the leadership of Claudine Brown to consider the nature of a proposed African American presence on the National Mall. I look forward to the early completion of this committee's report, which will then receive careful consideration by the Smithsonian's Board of Regents in the spring of 1991.

Also needed is a readiness to develop and experiment with a wider range of themes for new exhibitions, drawing upon external as well as internal suggestions. Our new Experimental Gallery in the Arts and Industries building, opening in January 1991 under the directorship of Kimberly Camp, boldly makes this its organizing principle. An experimental exhibition on looking at art is also scheduled at the Hirshhorn Museum. This greater openness to innovation will require, once again, that we maintain channels of communication and cooperation that extend beyond museum walls and embrace not only professionals elsewhere but community groups and volunteers. Apart from aiming at greater breadth and diversity, I would hope that these outside discussions will establish the atmosphere of informal, candid, and continuing exchange that is based on mutual trust. There simply is no better way to identify overlooked issues and unsuspected racial, ethnic, and other stereotypes that to underrepresented groups may be symbolic and fundamental.

The Smithsonian's second major programmatic priority involves its commitment to the conservation of a worldwide habitable environment. Environmental degradation is proceeding at a frightening rate, in benign, man-altered ecosystems and noxious urban settings, as well as rapidly dwindling natural habitats. Prospects of climatic change at a global scale remain gravely uncertain. Many public and private bodies are acting in concert on these issues, here and abroad. But the Institution's stake is older and more central.

The unparalleled, systematic collections in our National Museum of Natural History are, to begin with, a fundamental tool for all to use in carrying on primary studies both of ecosystemic destruction and of loss of biodiversity. Our Tropical Research Institute in Panama has developed perhaps the longest and most comprehensive record available anywhere of the most actively endangered of all biotas, the neotropical forests. Our major Amazonian project on the biodynamics of forest fragments constitutes perhaps the most direct assess-



New acquisitions by the National Museum of American Art in 1990 included Washington Allston's *Hermia and Helena*, painted before 1818. This oil on canvas was purchased through the Smithsonian Institution Collections Acquisition Program and made possible by Ralph Cross Johnson, Catherine W. Myer, and the National Institute Gift.

ment of the key parameters of destruction. Smithsonian scientists are also engaged in important comparative studies of tropical forests in other world regions. Nor have we ignored the related problems of atmospheric and water-body pollution that are more characteristic of our temperate latitudes, as all the work at our Environmental Research Center on the Chesapeake Bay attests.

These measures and investments all can be assigned to the increase-of-knowledge component of the Institution's mandate, but there is similar activity and commitment under the heading of diffusion. Epitomizing that set of responsibilities is an active, newly established Smithsonian Office of Environmental Awareness. To continue with a very selective listing, there has been a series of conferences, symposia, and media briefings, as well as presentations to members of Congress and federal science administrators by Smithsonian scientists. Work is under way to make our very successful traveling exhibition on tropical rainforests available for museums and educational institutions in Latin America. Honoring the 20th anniversary of Earth Day and its own, more or less simultaneous birth, the *Smithsonian Magazine* devoted a special issue to this subject. The National Zoological Park continues its difficult and valuable program for preserving endangered species, breeding them in captivity, and then, when appropriate, successfully reintroducing them into the wild. In an almost single-handed effort of great effectiveness, Tom Lovejoy has directly introduced a number of key congressional and corporate decision makers to the beauty and fragility of the Amazonian rainforest.

Still to be fully developed in our otherwise very impressive commitment to the conservation of biodiversity and a habitable world is adequate attention to the human dimensions of the problem. Poachers, poor farmers, landless and unemployed city-dwellers, forest products companies, and big ranchers all are agents of destruction in the tropics and elsewhere who respond in their own ways to the inducements and pressures confronting them. Commodity markets, debt, credit, fuel costs, and technology transfer figure in the range of options among which political elites governing those direct agents must choose. National and even international economies in each case generate many of the larger imperatives of their lives. An exploding world of rapid, cheap communications continuously creates new



A student in the summer high school internship program conducted by the Office of Elementary and Secondary Education helps prepare artifacts for display. (Photograph by Jonathan Barth)

wants, styles, and obsolescences. How can at least the lowest level of all these complex processes, the interface between the tree and the human agent of its destruction, not be a subject just as needful of intensive study and understanding as the natural ecosystem?

However, this theme is also one with which I and other Smithsonian spokespersons have dealt previously. It remains as important as ever for us, but I must now turn to an additional priority area. This is an area of opportunity as well as challenge. I speak of our respon-

sibilities for education, surely the central charge in the "diffusion of knowledge" part of our charter.

The Smithsonian's role obviously must be carefully circumscribed, in order for it not to overwhelm our capabilities. This role is one of making a specialized, but by no means unimportant contribution to a huge, decentralized, and frankly rather chaotic undertaking. Properly deployed, our human, exhibition, and collections resources have the potential of improving, supplementing, and perhaps to some extent even redirecting, school-based programs. Our own programmatic emphasis on enhancing the appeal and outreach of museums to more diverse audiences—on broadly embodying and representing America's cultural diversity—leads to a corresponding emphasis in our educational programs on underserved school populations. What is needed is a carefully phased, deliberate approach that will stay the course without quickly becoming discouraged by the magnitude of the problem. James Early has been charged with developing this approach, while not losing sight of the programmatic strengths and limitations that set the parameters of our own involvement.

The crisis in American schooling has been widely noted, but its seriousness warrants further discussion. According to the National Assessment of Educational Progress, "only seven percent of the nation's 17-year-olds have the prerequisite knowledge and skills to perform well in college-level science courses." Combined verbal-math scores are significantly lower today than they were a generation ago, and the absolute number of students scoring above the fairly mediocre level of 800 is 30 percent below where it was in 1972. The average Japanese 12th grader has a better command of mathematics than the top 5 percent of his or her American counterparts. Typically, American students rank at or very nearly at the bottom of ranked performances covering most subject matters of students from comparably advanced, industrialized countries. Some 27 million adult Americans are functionally illiterate, and I need not tell you standards of so-called literacy prevailingly are set well below the levels of reading and writing proficiency needed for continued personal and vocational growth in later life.

But we need to look deeper than aggregate statistics. The gulf between per-pupil levels of spending is higher than it has been in 20 years. New York State, for example, spends eight times as much per pupil in some

districts as it does in others. Ten states are under court order to develop more equitable funding formulas, and litigation is under way in 10 others. The gulf in quality is even greater than the gulf in dollars, with inner-city schools typically suffering most in the availability of laboratory, art, and other facilities; supplemental, advanced-level programs; and specialized teaching staff. It is evident that there is a prevailing assumption that enriched programmatic content will be essentially wasted on average or underperforming students. That disparity is then further increased by the differential access of students who have been the beneficiaries of enriched programs to higher education.

Widely characteristic of the American public education system, in other words, is a philosophy of "tracking" that has provided, in effect, a mask if not a rationale for systematic deprivation. A recent Rand Corporation study, commissioned by the National Science Foundation, offers a sweeping indictment of tracking that goes to the heart of the equality issue as it affects our whole educational enterprise:

Although the decisions are usually well-intentioned, considerable evidence suggests that tracking, especially at secondary schools, fails to increase learning generally and has the unfortunate consequence of widening the achievement gaps between students judged to be more and less able.

Although schools may *think* that they ration good teaching to those students who can most profit from it, *we find no empirical evidence to justify unequal access to valued science and mathematics curriculum, instruction, and teachers.*" (Jennie Oakes, "Multiplying Inequalities: The Effects of Race, Social Class, and Tracking on Opportunities to Learn Mathematics and Science," 1990)

In general, I think there is little disagreement on the areas within which the crisis in our national school system is either most concentrated or can best be addressed. Subjects of most critical priority include science and mathematics literacy, especially among minorities and females; environmental education and awareness; knowledge of the diverse cultures of the world; and geography. There is also a fairly wide consensus that an emphasis is needed, and that improvements can be made most readily, at the lower grades of the educational system, and in teacher training.

What special contribution can the Smithsonian make not only to reducing our gross educational inadequacies but to overcoming disparities within the system? These two problems together constitute what may well be the



Smithsonian astrophysicist Margaret Geller was one of 36 people nationwide in 1990 to be awarded a fellowship by the John D. and Catherine T. MacArthur Foundation. The award was given for her work with colleague John Huchra on the distribution of galaxies in space. (Photograph courtesy of Margaret Geller)

most serious social and economic challenge facing us as a nation as we prepare to enter the 21st century. Substantial and fruitful discussions of the Smithsonian's role in education questions have been going on within the Institution during the past year. It may be premature to suggest that a full consensus has been reached, but I believe I can outline tentatively what at least a few elements of such a consensus are likely to be:

1. Museums traditionally highlight static objects, but are mastering the arts of dynamic display that permit them to portray interrelationships, change, and process with almost equal vividness and explanatory power. The National Portrait Gallery, for example, is planning to incorporate biographical materials in 20th-century media such as radio and television in its exhibits, as well as in its study collections. Museums will increasingly teach and communicate, in other words, across virtually the entire range of visual and oral experience. They can call into question arbitrary definitions and force a broadening of traditional categories, as does the newly acquired Hemphill Collection at the National Museum of American Art for the whole field of American art. Thus they can provide an enormously powerful supplement and corrective to classroom and textbook learning. They have special advantages in making intelligible the many complex systems that students must learn to move through and manipulate in the course of their lives.

Global environmental change illustrates the need in this area that we should try to fill. It is characterized by many interdependent variables and grave uncertainties, especially about diverse regional outcomes that may range from benign to catastrophic. Only displays that permit these challenges to be viewed across time, at different geographical scales, and on the basis of diverse bodies of data can truly communicate them.

Last spring saw the opening at the National Museum of American History of a permanent, brilliantly detailed and enormously thought-provoking exhibition on the Information Age. This is a pioneering exposition of the growth of a complex system of an entirely different kind, with enormous educational potential. Our many contributions to the forthcoming Columbus Quincentenary represent another ambitious effort to convey a complex, multidimensional message. In this case, major exhibitions in a number of our museums and a television series will view the five-century encounter of different cultural traditions, and the emergence of entirely new ones as a result, through entirely different media and from highly contrastive perspectives. I doubt that the richness of texture we invite our visitors to see in the process could be as persuasively conveyed in any other way. For the same reason, the entire ensemble will offer an unparalleled learning experience in the highly diverse and pluralistic character of a hemispheric

experience that finds no serious reflection in current school textbooks.

2. Distinguishing the Smithsonian is an ongoing combination, a happy marriage, between research and exhibition and other forms of outreach to a vast audience. Many individuals on our staff are concurrently involved in both. This encourages a linkage of living processes of scholarly and scientific discovery with the products of such discoveries. It directly inculcates the attitudes of identifying researchable problems, of framing open-minded and orderly procedures of analysis, of following new findings wherever they may lead. We would appear to have much to offer as a setting in which to establish and illustrate learning as an attitude rather than a barrier. This suggests that we assume a responsibility to develop institutional mechanisms that encourage some form of direct access between young people and ongoing scientific and scholarly work. Hands-on experience with collections and exhibit preparation form a considerable part of that arena of the Institution's work, and should be especially amenable to a mentoring approach.

3. The stance of the Smithsonian with regard to the educational part of its chartered responsibility for the "increase and diffusion of knowledge" must be to enhance educational opportunities for all. Certainly it should not be to reinforce prevailing practices that have long tended to "track" and thus constrain the access of young people to the better and fuller life that only education can offer. It is a broad and diverse spectrum of young people that this Institution is best qualified to attract and work with, not merely a selection who come to us already designated as high performers.

4. It is always a surprise to find that there are already numerous initiatives at the Smithsonian in a field such as educational outreach, frequently failing to pool their knowledge and efforts and often in ignorance of one another. With this in mind, Ann Bay and Zahava Doering are developing a comprehensive Educational Programs Inventory on the basis of questionnaires that will help provide a framework for sharing information.

5. A troubling feature of our existing Institutional arrangements is that they seldom permit an evaluation of our effectiveness in reaching young people or any long-term contact with the same individuals. Real teaching involves iteration, reinforcement, dialogue. "Longitudinal" contact, not in chance one-day visits to

our museums but in long-term interaction, affords the best, self-correcting measures of our effectiveness. Some may argue that the Smithsonian should presently act upon this understanding by developing its own version of a comprehensive educational program, possibly even in its own classrooms. The Resident Associate Program has, after all, succeeded on that basis in developing an enormously successful "open university" whose programs in some instances are directed to students at the primary and secondary levels. Doing so more directly and extensively might be unwise, however, since our basic stance should be to cooperate rather than compete with existing school systems.

6. As this suggests, the Smithsonian's efforts in education should continue to rely heavily on the principle of *collaboration* with other institutions and organizations. It has already served us well in our joint sponsorship with the National Academy of Sciences of the National Science Resources Center (NSRC). Since opening its doors in the Arts and Industries Building four years ago, the NSRC has come to occupy a position of leadership as a national information clearinghouse on science teaching resources. Through the field testing of its *Science and Technology for Children* curriculum units, the center is developing a close working relationship with a broad range of school systems serving approximately one million children—about 5 percent of the children in the nation's elementary schools. Its information data base of science teaching materials is being expanded to include resources for middle schools, and the prospective publication of a resource guide for middle school science teachers will signal the expansion of the NSRC program to secondary school levels.

More recently, we have also joined in sponsorship of an innovative series of enrichment programs. Entitled the District of Columbia Science and Engineering Regional Center, this new consortium is headed by Howard University and funded by the National Science Foundation. With promising efforts like these already under way, we may want to move on to more direct modes of cooperation with individual schools or school districts.

All the areas and programs whose high priority I have reviewed involve concerns and actions that are widely distributed in the Institution. In closing, however, I want to deal with the goals of an ongoing man-



A group takes notes during one of the science workshops being conducted for young people at the Anacostia Museum. (Photograph by Harold Dorwin)



Students from the Jelleff Boys and Girls Clubs of Washington, D.C., find Yokohama on an illuminated map of Japan in the Sackler Gallery Learning Center as docent Christine Lee (right) looks on. (Photograph by Jeffrey Crespi)

agement reorganization during the past year that is concentrated in the Castle. This should be thought of as a response, overdue but still unfolding, to bureaucratic problems of delay, nonresponsiveness, and ineffectiveness. Typically, these problems grow in small, almost unnoticed increments. Those of us in senior management have too easily dismissed this trend as part of a general drift toward the increasing cost and complexity of running almost any kind of organization or business. But the time is at hand to see it as a symptom of a pervasive, systemic illness, and to correct it.

As we are all aware, the Smithsonian has grown enormously over the past generation or so. That growth is a measure of the successful adaptation of the Smithsonian's mandate to new needs and opportunities. Impressive new museums welcome an unparalleled flow of visitors to Washington. The rate of growth has been even greater in other public programming, and in the scope and diversity of our research. Yet the painful side effect is that traditional modes of management no longer are well suited to the Institution's changing set of programmatic priorities. A service orientation is less and less evident in essential, and what should be fairly well-established service functions, including but not limited to some of those concerned with personnel, payroll, accounting, procurement, and development. Tending to replace it—not uniformly but too frequently—is a focus primarily on internally generated goals and standards of performance. When that happens, individuals and whole offices can become impediments rather than facilitators of the prompt and responsive actions that not only our operating units but our public and our oversight bodies expect of them.

A service orientation must extend to the highest levels of the Smithsonian. To be sure, there are increasing numbers of demands to distract us. Fiduciary accountability is the most familiar one, but to it now are added compliance with environmental safety, public access, equal employment opportunity, and many other bodies of regulations. Our very success, the centrality the Smithsonian has achieved as a national cultural institution, makes the actions we take or fail to take more consequential for our many public constituencies. Moreover, in the public arena there are no crisp formats for decision making. Dialogue and diffuse consensus building are the order of the day. All of this undeniably presents new and unprecedented challenges to

management. But we must never lose sight of the fact that a service orientation is fundamental.

Nancy Suttentfield has rendered a signal service to the Smithsonian in the months since Dean Anderson's departure in the summer of 1990. Under her direction, plans are moving forward to streamline our administrative structures, not only to improve our overall efficiency but to capture additional resources for the operations for which we exist. In December, she assumed the permanent position of assistant secretary for finance and administration. John Jameson, who has long rendered exemplary service as assistant secretary for administration, has accepted an assignment as senior adviser to the Secretary with primary responsibilities for many important aspects of long-range facilities planning.

It is with great pleasure that I also welcomed Carmen Turner as the Institution's under secretary in mid-December. Hers is an extraordinary record of dedicated public service, culminating in her leadership of Washington Metro as its chief executive officer. She is a self-described "people person," and the Smithsonian *is* people. We could not have found someone more marvelously qualified than she to address these management challenges—nor someone more deeply sympathetic with the priorities the Smithsonian has set for itself.

As she has said to me before, she views the Smithsonian as a new hill to climb. It is a steep but very rewarding hill. As our activities are geographically so dispersed, I might be tempted to say that she will find this a hill from which one sees far afield. But I know she already does that. The more vital point is that this great Institution will call upon her for all the powerful guidance in management she can provide, as we take steps to ensure that it attains the full potential, quality, and range of its influence.

The Year in Review

The Smithsonian entered the last decade of the twentieth century with a heightened commitment to remaining at the forefront of today's complex issues and preparing for a future of continued social, economic, and environmental challenges. By acquiring and transmitting knowledge about our diverse material and natural heritage through its collections, research, exhibition,



A child in a North Carolina cotton mill (1908) turns her back on her work in this photograph from the exhibition "From Parlor to Politics: Women and Reform in America, 1890–1925" at the National Museum of American History. The struggle to end child labor in the United States is part of the history of the exhibition.

and education programs, the Smithsonian provides a touchstone for Americans living in an increasingly transitory age. As the scope and rapidity of global change transforms our world into a global community, the Smithsonian's service reaches even further, and its impact will be even more significant. Through the multifaceted activities of its bureaus and offices, the Smithsonian contributes to people's understanding of the historical and scientific foundations of today's world, increases their sensitivity to our society's diversity, and stimulates their concern for the fragility of the global environment. These are all qualities that an informed citizenry needs to meet the challenges of the coming century.

Throughout the Smithsonian in 1990, programs, exhibitions, research, and other activities reflected the Institution's ongoing commitment to preserving, stimulating, and presenting cultural and biological diversity. Earth Day 1990 was observed with symposia, conferences, and a special anniversary issue of *Smithsonian* magazine. "The Global Environment: Are We Overreacting?" a two-day conference sponsored by the Office of the Assistant Secretary for External Affairs and attended by about 150 leading environmental scientists and members of the media, pointed to the need for urgent action on environmental problems during the next decade. National Museum of Natural History researchers presented a series of briefings on the history of global change to members of Congress, science administrators, media representatives, and the public. The museum also organized a day-long forum, "Earth Day 1990: Shaping a New Environmental Agenda." Renewed public interest in environmental issues prompted the creation of the Smithsonian's Office of Environmental Awareness, with the mandate to increase understanding of the critical problems facing our planet. *Smithsonian* magazine, which was founded 20 years ago at the time of the first Earth Day, devoted its April issue to the state of the environment.

One of the year's most significant events pointed to new horizons for the Institution: the establishment of the National Museum of the American Indian, the 15th museum in the Smithsonian complex. Legislation establishing the museum, which President George Bush signed into law on November 28, 1989, calls it a "living memorial to Native Americans and their traditions." This year, plans for the museum were set into



Inspecting a model of the innovative Experimental Gallery space are Kimberly Camp (right), gallery director, along with (left to right): Freida Austin, gallery assistant; Walter Sorrell, assistant director, Office of Exhibits Central; George Quist, OEC modelmaker; Ken Young, OEC, Experimental Gallery project designer; and David Hay, architect, Office of Design and Construction. (Photograph by Laurie Minor)

motion, beginning with the appointment of a board of trustees and a director, W. Richard West, Jr. In June, the collections of the Museum of the American Indian, Heye Foundation, were transferred to the Smithsonian.

From its beginning, the museum is setting out to change the traditional approach to presenting the culture, traditions, and values of Native American people. With its collections as the centerpiece, the museum will develop interdisciplinary programs that explore Indian culture from the perspectives of history, art, music, dance, and drama. The planning process involves extensive formal consultation with Indian tribes from throughout the country.

The first of three components of the National Museum of the American Indian, the George Gustav Heye Center, is scheduled to open in late 1992 in the old U.S. Custom House in lower Manhattan. Construction of the Mall museum, next to the National Air and Space Museum, is slated to begin in the mid-1990s. A storage, research, and conservation facility will be located at the Museum Support Center in Suitland, Maryland.

Smithsonian museums traditionally have developed their own African American research, exhibition, and education programs, but this year the Institution began to assess potential new directions. In an important initiative launched during fiscal year 1990, the form and content of an African American "presence" on the National Mall is being considered. An advisory committee of scholars and authorities on African American art, history, and culture is studying various options for establishing a new African American presence, which include but are not limited to a new museum, a research center, and a trust for existing African American museums. The committee's final report is expected in early 1991.

The Smithsonian marked three anniversaries this year, beginning with the centennial of the Smithsonian Astrophysical Observatory, the internationally recognized research center established by aeronautical pioneer and Smithsonian Secretary Samuel Pierpont Langley in a modest observatory behind the Castle. The National Museum of American History celebrated its 25th anniversary with the opening of its largest permanent exhibition ever, "Information Age: People, Information, & Technology." In honor of *Smithsonian* magazine's 20th anniversary, the Smithsonian Institution Press published *Editor's Choice*, an anthology of the best of the magazine's first two decades.

Looking ahead to the observance of the 500th anniversary of Columbus's landfall in the Americas, Smithsonian bureaus and offices continued planning for more than 100 programs, including exhibitions, conferences, and television and radio series. Quincentenary programs announced this year include a 13-part radio series about the Columbus encounter from the Native American perspective, to be produced by the Office of Telecommunications in collaboration with the Native American Public Broadcasting Consortium. The Corporation for Public Broadcasting has contributed \$224,000 toward production and distribution of the series.

Visitors this year to the Smithsonian's 14 museums numbered 25 million, a slight increase over last year's total. Earth Day, April 22, was an especially busy day for Mall museums. The new Smithsonian Information Center was a popular drawing card for Mall visitors throughout the year. In its first 10 months of operation, the center served more than 1.5 million people,

making it the fourth busiest Smithsonian facility. Exhibitions and public programs also attracted large numbers. More than 750,000 people visited the National Museum of American History's "Information Age" exhibition from its opening in May through September 30. "Masterworks of Louis Comfort Tiffany" drew 230,000 visitors to the Renwick Gallery of the National Museum of American Art, a record number for the gallery. Exhibitions circulated by the Smithsonian Institution Traveling Exhibition service took the Smithsonian beyond the National Mall to approximately 11 million people in 42 states and the District of Columbia plus Africa, Canada, and India. In 1990, more than 323,000 people of all ages enjoyed nearly 2,000 activities offered by the Resident Associate Program.

Visitors to the National Mall can now begin their tours at the new, state-of-the-art Smithsonian Information Center, which opened in the Great Hall of the Castle in November. Volunteer information specialists have multimedia assistance in the form of interactive videodisc programs in seven languages, an orientation video shown in twin theaters, electronic wall maps, and monitors describing daily activities at the Smithsonian. The new facility is the centerpiece of the six-year effort of the Visitor Information and Associates' Reception Center (VIARC) to improve visitor information and orientation services.

A dedicated corps of volunteers provides invaluable service to the Smithsonian each year. Whether conducting tours of exhibitions, staffing visitor information desks, or working behind the scenes, volunteers bring enthusiasm, experience, and versatility to the task of helping the Institution serve the public. This year, VIARC's 650 information specialists carried out a variety of public information duties, and 1,200 volunteers provided short- and long-term assistance through the VIARC Behind-the-Scenes Volunteer Program. More than 400 volunteers contributed 26,000 hours to the Resident Associate Program's activities. Members of the Women's Committee of the Smithsonian Associates gave more than 7,000 hours of service to the Smithsonian. At the National Zoological Park, a record 750 Friends of the National Zoo (FONZ) volunteers worked 67,000 hours.

Efforts to attract a more culturally diverse group of volunteers brought success this year. Nineteen percent of those who participated in VIARC's training classes



Museum technician Daniel Chaney is seen here preparing a fossil whale, one of the specimens on view in the new Natural History permanent hall, "Life in the Ancient Seas," which opened in May. (Photograph by Chip Clark)

represented minority constituencies, while the National Museum of American Art's new docent recruitment program also attracted more minority volunteers.

The foundation of the public service the Smithsonian provides are its exhibitions, public programs, research activities, and collections.

Exhibitions

The exhibitions mounted each year in the Smithsonian's museums are one of the most important links between the public and the Institution's multifaceted collections. By joining objects with ideas and information, Smithsonian curators, educators, and exhibit designers create settings that recount aspects of history, explain scientific principles or technological developments, or trace the evolution of an artistic style or movement. Exhibitions at the Smithsonian both enlighten and entertain, and they are designed to appeal to people of all

ages, interests, and backgrounds. A Smithsonian exhibition can be a large-scale overview of a complex topic or an intimate glimpse of objects or ideas. The permanent and temporary exhibitions presented in the past year represent the full gamut.

The largest permanent exhibition ever organized by the National Museum of American History opened in 1990. "Information Age: People, Information, & Technology" explores the evolution of information-processing and communications technologies and the impact of technology on our society. The 14,000-square-foot exhibition is a technological innovation in itself. An impressive number of sophisticated interactive devices stimulate visitor involvement, including computer-driven video stations and a bar-coded brochure that enables visitors to print out a computerized record of their activities.

Another large-scale exhibition opened in 1990: the National Museum of Natural History's "Life in the Ancient Seas." The new hall is the first permanent exhibi-

tion focusing on prehistoric marine life ever constructed by a major U.S. museum. Its opening marked the completion of a 15-year project to renovate the museum's paleontological exhibits.

An eclectic assortment of art forms—from American paintings to the decorative arts to doghouse architecture—was represented in the galleries of the Smithsonian's art museums this year. The Hirshhorn Museum and Sculpture Garden organized a major retrospective of the British painter Francis Bacon to coincide with the artist's 80th birthday. The well-received exhibition went on national tour following its showing at the Hirshhorn. The largest and most complete exhibition of the work of nineteenth-century painter Albert Pinkham Ryder was held at the National Museum of American Art. In addition to nearly 80 paintings, the exhibition displayed a dozen of the more than 100 forgeries of Ryder's work and included a special technical section, organized in collaboration with the Smithsonian's Conservation Analytical Laboratory, explaining why many of the artist's paintings have deteriorated.

The Arthur M. Sackler Gallery, a museum of Asian art and one of newest in the Smithsonian family, mounted its first exhibition of Japanese art. "Yokohama: Prints from Nineteenth-Century Japan" included 85 color woodblock prints depicting scenes of this trade city and its residents' first views of Westerners following Commodore Perry's mission in 1853. A major loan exhibition organized by the National Museum of African Art, "Icons: Ideals and Power in the Art of Africa," explored varied interpretations of five traditional iconic themes by different African peoples.

"Irving Penn Master Images," a collaborative effort of the National Portrait Gallery and the National Museum of American Art, included the 120 master photographs that the noted photographer gave to the two museums. The Anacostia Museum's summer exhibition "Whose Art Is It, Anyway? The Arts in Public Places" explored the many forms that public art takes, from sculpture to clothing and hair styles. "Masterworks of Louis Comfort Tiffany," the highlight of the year's exhibitions at the Renwick Gallery of the National Museum of American Art, featured 65 examples of the artist's genius; some of the objects had never been lent to a museum exhibition. Cartoonist Pat Oliphant's caricatures, sketches, and sculpture were the focus of "Oliphant's Presidents: Twenty-Five Years of Caricature,"

one of the most popular exhibitions ever held at the National Portrait Gallery. The whimsical exhibition "The Doghouse" at the Cooper-Hewitt National Museum of Design was a flight of fancy for the architects and designers who were invited to create their visions of the ideal canine residence.

The complex vitality of American society was evident in the themes of a number of exhibitions this year. "To Color America: Portraits by Winold Reiss," a group of images of the nation's many ethnic groups created by a German-born artist, brought new audiences to the National Portrait Gallery. The National Museum of American History presented "From Parlor to Politics," an exhibition about women's emerging social consciousness during the Progressive Era, 1890–1925. Contemporary life in a Hispanic neighborhood in Albuquerque, New Mexico, as shown in photographs by Miguel Gandert, "VSJ—Varrio San José: Scenes from an Urban Chicano Experience," was the theme of another exhibition at the National Museum of American History.

Even permanent exhibitions are subject to change to ensure that they are based on the most up-to-date thinking and are accessible to visitors with a variety of interests and learning styles. Museum staff at the Smithsonian regularly evaluate the content and effectiveness of exhibitions and make revisions based on the results. At the National Museum of American History this year, "After the Revolution: Everyday Life in America, 1780–1800" has been temporarily closed while curators, educators, and designers revise its content and design. For "Field to Factory: Afro-American Migration 1915–1940," new interpretive material is being developed for younger visitors. The Smithsonian Institution Traveling Exhibition Service is working with the Office of Exhibits Central to reconfigure the popular environmental exhibition "Tropical Rainforests: A Disappearing Treasure" for museums and educational groups in Latin America. At the National Air and Space Museum, new images of Neptune and Triton obtained by Voyager I in 1989, along with a meteorite believed to have come from Mars, were added to the Exploring the Planets gallery. Following the opening of "Life in the Ancient Seas," next on the agenda at the National Museum of Natural History is the replacement of its outdated geology exhibits with an innovative new hall, "Geology, Gems, and Minerals."

In the future, museum staff will be able to test exhibition techniques before they are actually installed. Work was almost completed in 1990 on the Smithsonian's new Experimental Gallery, a laboratory setting in which both fully realized exhibitions and exhibitions-in-progress can be tried out on visitors. This year, the National Museum of American History inaugurated an Exhibition Preview Area in which staff can test visitors' reactions to concepts and techniques being considered for future exhibitions.

Public Programs

The Smithsonian is not just a complex of museums and research entities, but a gathering place for a "community" that extends throughout the nation and the world. The millions who visit the Smithsonian each year—and millions of others who experience the Institution through television, radio, and the printed word—enjoy it as a place to learn, be entertained, and engage in dialogue with others. Public programs and events for a variety of audiences give greater dimension to the Smithsonian's other activities, from the exhibitions presented in its museums to the efforts to preserve and document tropical biodiversity.

The Institution's mandate for serving a diverse public was evident this year in public programs that reflect the variety of our cultural heritage. Highlights included "African American Dance: Beauty, Rhythm, and Power," presented by the Program in African American Culture at the National Museum of American History, which explored the roots of African American dance and its impact on American dance forms. Other programs at the museum focused on the genius of Duke Ellington and the influence of gospel music on the development of jazz.

Nineteen weekend presentations of Native American crafts drew up to 1,500 people a day to the National Museum of Natural History. The museum also hosted the American Indian Theatre Company of Oklahoma, which attracted standing-room-only crowds.

At the National Portrait Gallery, the popular Cultures in Motion program continued to present a multicultural view of American history through lectures, symposia, one-person biographical plays, recitals, concerts, and storytelling. The gallery also organized "The

Politics of Portraiture," a symposium accompanying the Winold Reiss exhibition that considered the approaches artists take to creating images of our multicultural society.

The local community is a resource for Smithsonian museums as they develop programs for multicultural audiences. The Arthur M. Sackler Gallery worked with Asian communities in the Washington, D.C., area to develop learning centers featuring books, films and videos, maps, photomurals, and hands-on objects to enhance its exhibitions of Asian art. A comfortable "reading corner" for "Yokohama: Prints from Nineteenth-Century Japan" contained traditional Japanese furnishings and books about Japanese history and culture.

Celebrations of the nation's diverse heritage take place year-round through observances of Asian/Pacific American Heritage Week, Black History Month, Hispanic Heritage Month, and Native American Week. Lively performances of music, dance, and theater, crafts demonstrations, and lectures and seminars illuminate the traditions that together shape a uniquely American culture. The annual Festival of American Folklife brought living exhibitions of diversity to the National Mall again this summer. This year's festival featured the cultures of the U.S. Virgin Islands and Senegal and highlighted the musical expressions of contemporary protest movements in "Musics of Struggle."

The Institution-wide commitment to presenting cultural diversity was reflected in the Office of Public Affairs' outreach and collaborative efforts with diverse communities. A new bimonthly newsletter, *Smithsonian Runner*, brings information about the National Museum of the American Indian and other Smithsonian programs of interest to Native Americans to a nationwide readership. Through its Black Media Outreach Program and Hispanic Media Outreach Program, the office fosters communication with the media about the Smithsonian's many programs for African American and Hispanic audiences. This year's activities included the development of a media plan to increase the coverage of programs, activities, and resources of interest to African Americans and an exhibition promoting the Smithsonian at the National Hispanic Media Conference.

A number of Smithsonian programs and events are eagerly anticipated annual traditions. A sure sign of spring is the Resident Associate Program's kite festival

on the grounds of the Washington Monument. The 24th festival, held in March 1990, attracted 5,000 people. Crafts artists from around the country are in the spotlight at the Washington Craft Show, sponsored each April by the Women's Committee of the Smithsonian Associates. A Smithsonian holiday tradition is the Office of Horticulture's "Trees of Christmas" exhibition at the National Museum of American History. At the Anacostia Museum, a community celebration of Kwanzaa marks this African American holiday each December. Every April, the National Air and Space Museum's Paul E. Garber Preservation, Restoration, and Storage Facility opens its doors to thousands of visitors for a behind-the-scenes look at the intricate work of preserving and restoring historic aircraft and spacecraft.

Whether on a summer vacation trip or a Saturday morning outing, the Smithsonian is a popular site for a family visit. This year, most of the museums offered programs especially designed for families to enjoy together. Nomad Family Day at the National Museum of Natural History, held in conjunction with the exhibition "Nomads: Masters of the Eurasian Steppe," featured a riding demonstration, costumes, crafts, and folklore. A Family Day celebration during the National Museum of American Art's exhibition "Treasures of American Folk Art from the Abby Aldrich Rockefeller Folk Art Center" featured music, dancing, workshops, and a magic show and attracted 2,000 people. New interpretive programs for families and children were presented during Super Week at the National Museum of American History in an effort to expand visitor involvement in exhibitions.

Through teacher training workshops, museum programs for students, publications, and curriculum materials, the Smithsonian brings its rich resources into classrooms across the nation. A central point of contact for teachers is the Office of Elementary and Secondary Education (OESE), which helps teachers—and ultimately their students—make the most of what the Smithsonian has to offer. Among OESE's innovative programs this year was "Word of Mouth," a symposium for Washington, D.C.—area teachers on incorporating multicultural oral traditions—such as oral history and theater—into conventional classroom activities. The weekend event was cosponsored with the National Museum of American History.

The National Museum of Natural History held the Natural Science Institute for Teachers of Minority Students, designed to help teachers of grades 4 through 12 understand and interpret natural history objects. The National Science Resources Center brought together teachers, school administrators, and scientists from around the country for the second Elementary Science Leadership Institute to stimulate the implementation of effective elementary science programs.

Programs in Smithsonian museums and bureaus nurture young people's interest in choosing museum work as a career. The National Museum of American Art held a Career Awareness Program this year for area high school students. Under the auspices of the Office of Elementary and Secondary Education, recent graduates of urban high schools experienced the Smithsonian behind the scenes through eight-week internships.

Ensuring access to Smithsonian activities for visitors with special needs continues to be a priority of several museums. With its exhibition "The Doghouse," the Cooper-Hewitt National Museum of Design launched a major effort to make its buildings and programs accessible to visually impaired visitors, an audience not usually served by art museums. Changes suggested by the Arthur M. Sackler Gallery Accessibility Council, which reviews every new exhibition at the museum from the perspective of the disabled visitor, have been incorporated into exhibit design at the museum. The National Museum of African Art received a grant from the Smithsonian Women's Committee to fund educational materials and programs—including open-captioned films and a telecommunications device—for deaf and hearing-impaired visitors.

In keeping with the biological park, or biopark, concept, every aspect of the National Zoological Park—from public programs to animal exhibits—transmits a critical educational message about threats to global biodiversity and environmental quality. Visitors were able to engage in many activities this year, from observing the complex world of a drop of water through a microscope equipped with a video camera to watching animals through binoculars and participating in hands-on demonstrations led by volunteers.

Again this year, the Smithsonian offered a full schedule of live performances and films. Star-studded film premieres—which included the first Washington, D.C., showings of *Glory*, *Henry V*, and *The First Emperor of*

China, are a hallmark of the Resident Associate Program (RAP). RAP also presented performances by such artists as Brazilian guitarist Toninho Horta, the Twentieth Century Consort, and the Institution's own Smithsonian String Quartet, Smithsonian Chamber Orchestra, Smithsonian Chamber Players, and the Castle Trio. The National Zoological Park added theater to its repertoire of education programs with a production of *Young Charles Darwin* and a musical comedy about dinosaurs.

Through radio, television, and the printed word, the Smithsonian extends its impact to a wider public and disseminates the results of research conducted by Smithsonian scholars. More than 100 radio stations across the country broadcast a series on the intellectual life, politics, and natural resources of the Caribbean, featuring prominent Caribbean scholars and political leaders and held in conjunction with the "Caribbean Festival Arts" exhibition that was on view until February in the International Gallery. "Smithsonian World," which launched its fifth season on public television this

year, won national recognition this year when it received the prestigious Emmy Award for Outstanding Informational Series. "Invention," the Institution's first venture into cable television, was produced during the year for an October 1990 premiere. Produced by the Discovery Channel in cooperation with the Smithsonian, the series salutes human ingenuity and features the collections of the National Museum of American History.

Smithsonian Institution Press continued its tradition of excellence in scholarly and trade publishing through its University Press and Smithsonian Books. A new venture this year was children's book publishing, as the Press published *The Dream Is Alive*, based on the popular IMAX film shown at the National Air and Space Museum. *Smithsonian* and *Air & Space/Smithsonian* magazines continued to reach wide and enthusiastic readerships with articles on topics as multifaceted as the Institution itself. The Smithsonian News Service, which serves 1,000 daily and weekly newspapers nationwide with feature stories, signed an agreement with the New York Times Syndication Sales Corp. to distribute the news service overseas.

Research

Scholarly research has been a hallmark of the Institution since its beginning, and it is becoming an even more critical element of the Smithsonian's public service. The wide-ranging research of Smithsonian staff, fellows, and visiting scholars contributes to an understanding of the natural world, diverse cultures, technology, and human creativity and provides important new insights that will help in addressing the challenges of the years ahead. Smithsonian researchers discover new galactic structures, study the interdependence of tropical insect and plant species, document the history of advertising in the United States, and explore the complex themes in an artist's prolific body of work.

Global environmental research continued to be the focal point of the Smithsonian's research efforts. At the Smithsonian Tropical Research Institute (STRI) in Panama, extensive studies continued on the nature and relationships of tropical organisms and their role in the biology of the planet. STRI's new Center for Paleoecol-



Smithsonian Research Expedition volunteers monitor Arenal Volcano in Costa Rica. (Photograph by Juliana Lacey)

ogy, established this year, will contribute to scientists' understanding of the origins of man and changes in the natural world and their impact on the dynamics of global climatic change.

Scientists at the Smithsonian Environmental Research Center (SERC) in Edgewater, Maryland, are also providing insights into the nature of global climatic change through continuing long-term interdisciplinary studies of environmental problems. SERC studies address such questions as the "greenhouse effect" in tidal marshes and the interaction between the forest canopy and the atmosphere. Protecting the diversity of global ecosystems is also the concern of the Smithsonian Institution Man and the Biosphere Biological Diversity Program, which establishes collaborative efforts with developing countries to design and implement conservation training programs.

Under the auspices of the National Museum of Natural History, scientists conduct wide-ranging research in global change, human ecological history, biodiversity, Arctic studies, and other areas. The museum's Biodiversity Program expanded in 1990 in response to the accelerating destruction of tropical habitats. Museum scientists are at work in Bolivia, Peru, Ecuador, the Guianas, Brazil, and other parts of Amazonia. This year marked the inauguration of a multiyear archaeological study of sixteenth-century English explorer Martin Frobisher's base camp in the Canadian Arctic, the first English establishment on New World soil. Anthropological work continued at Olorgesaili in Kenya, where researchers hope to learn more about early human behavioral patterns by studying this site from the mid-Pleistocene era.

In its centennial year, the Smithsonian Astrophysical Observatory (SAO) continued its tradition as a leader in astronomy, astrophysics, and the space sciences. This year, two SAO astronomers identified the largest single coherent structure ever seen in nature, a "wall of galaxies" more than half a billion light-years long. SAO astronomers also obtained radar images of a small asteroid approaching the Earth, were selected as guest observers to use the Hubble Space Telescope, began the development of innovative telescopes for ground-based use, and engaged in numerous other research activities that carry on Samuel Pierpont Langley's vision for SAO when he founded it 100 years ago.

Insights into the history, science, and technology of

aviation and spaceflight emerge from the work of scientists and historians at the National Air and Space Museum. Highlights of this year's research included the first measurement of absolute wind velocities above the cloudtops on Venus, which resulted in new findings that the direction of atmospheric circulation at that altitude is opposite to that of the planet's rotation. World War I aviation, the history of hypersonic flight, African Americans in aviation, and pioneering aircraft designer Igor Sikorsky were the topics of research by scholars in the museum's Department of Aeronautics.

The vital work of scientists at the National Zoological Park is dedicated to preserving endangered species whose existence is critical to global biodiversity. This year, the Zoo continued its pioneering research in cat reproduction, a program that has gained international recognition. A Sumatran tiger representing a valuable genetic lineage was brought to the Zoo from Indonesia for propagation and study under the Species Survival Plan, a cooperative effort of North American zoos. Work continued in artificial reproduction of cats with the first successful in vitro fertilization of tigers using methods developed with domestic cats. The painstaking process of breeding animals in captivity and then reintroducing them to the wild is another focus of Zoo research. This year, scientists made strides in the breeding and reintroduction of black-footed ferrets and Guam rails—both species that are extinct in the wild. Under the continuing Species Survival Plan program for golden lion tamarins, more than 80 zoo-born tamarins have been reintroduced since 1984.

Cultural diversity, as well as biological diversity, is an important scholarly concern of the Institution. Research related to the many human cultural systems that form the global community—past and present—is conducted under the auspices of a number of Smithsonian offices and bureaus.

Traditional ethnic, tribal, regional, minority, and working-class cultures in the United States and abroad are the focus of the Office of Folklife Programs, which this year began an exchange project with the Soviet Union. Soviet and U.S. scholars will study continuity and change in cultural traditions by conducting fieldwork among Soviet immigrant groups in this country and related groups in the Soviet Union.

The twentieth century was the focus this year of the National Museum of American History's Department

of Social and Cultural History, which focused on expanding its research in contemporary American social and cultural history. Bernice Johnson Reagon, who received a prestigious MacArthur Foundation fellowship, has been using a case study approach to document the history of African American communities in Southwest Georgia and the Washington, D.C., area and to collect objects that help portray life in those communities. Her research techniques have led the museum to consider similar methods of collecting other culturally diverse twentieth-century material.

Research by Smithsonian scholars expands knowledge and understanding of visual arts traditions and techniques spanning many centuries. In the field of art history, research is sometimes dedicated to gaining a better understanding of objects in museum collections. Art historians and art conservators worked together on a multidisciplinary project conducted by the Freer Gallery of Art and the Arthur M. Sackler Gallery to compare objects in the two museums' collections of ancient

Iranian metalwork with similar objects from institutions in North America, Japan, Great Britain, Europe, and the Soviet Union. Although the Freer is closed to visitors during its major renovation project, researchers still have access to the collections and library when possible.

Museum exhibitions also involve a strong research component, which provides a foundation for visitors' education and enjoyment. Extensive research was evident, for example, in the National Museum of American Art's comprehensive exhibition "Albert Pinkham Ryder." Little information exists about the eccentric nineteenth-century artist, so the exhibition's organizer and museum Director Elizabeth Broun had to uncover many additional resources to construct an overview of Ryder's career and cast new light on his materials, methods, and subject matter.

Invaluable research for the Ryder exhibition was conducted in the Archives of American Art, which this year began to focus efforts on improving access to its

Tropical Research Institute Assistant Director for Terrestrial Research Alan Smith shows Prince Joachim of Denmark how ants patrol wild ginger in the forest on STRI's Barro Colorado Island. (Photograph by Carl Hansen)



collections and services to researchers. The research portion of the Archives' automated data base is near completion, and next year the Archives catalogue will be available in libraries throughout the country as part of the Research Libraries Information Network.

Several Smithsonian-based projects are devoted to organizing, documenting, and publishing the papers of noted Americans. This year, the Joseph Henry Papers achieved a major goal: the development of an improved automated index to the papers of this respected scientist and first secretary of the Smithsonian. The Peale Family Papers project, administered by the National Portrait Gallery, continued work on volume 4 of the papers of this well-known family of artists. Volume 5, Charles Willson Peale's autobiography, is also in progress.

Each year, the rich resources of Smithsonian collections are fertile ground for research by hundreds of scholars and students in art, history, and science. The Institution's research support programs, administered by the Office of Fellowships and Grants, assist researchers from this country and abroad who want to use Smithsonian facilities in conjunction with staff members. In 1990, nearly 950 graduate and undergraduate students and scholars received awards from the Smithsonian. These short- and long-term appointments range from 10-week fellowships for students in the early stages of their graduate training to Regents Fellowships for distinguished scholars who are in residence at the Institution.

Institution-wide programs include the Smithsonian Fellowship Program, which marked its 25th anniversary this year. Postdoctoral, doctoral, and senior postdoctoral Smithsonian fellows conducted independent studies at the Institution on such topics as African American seamen in the Atlantic World from 1750 to 1885 and representation of domestic servants in nineteenth-century painting. The Faculty Fellowship Program supports research by minority faculty members, while undergraduate and graduate internships stimulate research by minorities in Smithsonian fields of interest. Nineteen Native American students and scholars received awards for the use of Native American collections at the Smithsonian.

Awards from Smithsonian bureaus included research fellowships at the National Air and Space Museum, the

Renwick Gallery of the National Museum of American Art, and the Smithsonian Astrophysical Observatory. Conservation interns were in residence at five Smithsonian museums and the Conservation Analytical Laboratory.

Workshops and training programs offered by the Smithsonian brought museum professionals and scholars in related fields to the Institution this year. In "Building Partnerships: Museums and Their Communities," the first training congress sponsored by the Office of Museum Programs, 85 museum leaders from across the country assembled for discussions of the relationship between museums and their diverse constituencies. Fifty participants from the United States and France shared common concerns on issues of science and human rights at the international symposium "Les Droits de l'Homme and Scientific Progress," cosponsored by the Office of Interdisciplinary Studies and the National Academy of Sciences.

Members of the public, scholars, students, and others can gain informal access to Smithsonian resources with the assistance of staff in various offices. In the 14 branches of the Smithsonian Institution Libraries, staff answered 61,000 reference questions this year. The Visitor Information and Associates' Reception Center processed about 47,000 pieces of mail and responded to more than 337,000 calls for information about Smithsonian programs and events; more than 24,000 calls were received in April alone.

Collections

The 137 million objects and specimens that the Smithsonian holds in trust for the American public form a comprehensive record of human creativity, scientific and technological innovation, and the wonders of the natural world. As these collections are enriched each year by the acquisition of thousands of objects, they present an increasingly diverse picture of our cultural and natural heritage.

By far the high point of the year was the transfer to the Smithsonian of the collection of the Museum of the American Indian, Heye Foundation. This magnificent assemblage of more than 1 million artifacts—considered one of the finest Native American collections ever accumulated—will be the centerpiece of the National

Museum of the American Indian. In addition to artifacts, the collection includes a library, photo archives, and other resource materials.

The holdings of the Smithsonian's art museums grew with the addition of works of art spanning many centuries and representing many cultures and styles. The Hirshhorn Museum and Sculpture Garden added to its collection an important work by sculptor Henry Moore, *Stringed Figure No. 1* (1937), and major works by Edward Ruscha, *Five Past Eleven* (1989), and Richard Artschwager, *Two Indentations* (1967). The National Museum of American Art acquired three important American sculptures this year: Louis Jimenez's *Vaquero*, Elizabeth Catlett's *Singing Head*, and Ernest Tino Trova's *FM/5' AWF #3*. The museum also enriched its strong collection of African American art with paintings by Mailou Jones, Romare Bearden, Jacob Lawrence, and Frederick Brown. At the Renwick Gallery, works by such artists as Jere Osgood, Daniel Jackson, and Robert Arneson were added to the collection of contemporary crafts.

The Arthur M. Sackler Gallery acquired a number of examples of twentieth-century Asian art for its collection, along with a group of photographs by Raghubir Singh. To the collection of the Freer Gallery of Art were added a hanging calligraphy scroll by the Chinese Emperor Ch'ien-lung (reigned 1736–95), a silver rose-water bottle made in India around 1700, and two fine examples of nineteenth-century Indian gold jewelry.

Notable additions to the collection of the National Museum of African Art were a wood protective figure by the Teke peoples of the Republic of the Congo and a nineteenth-century throne of the Hehe peoples of Tanzania, carved in the form of a female torso.

Significant acquisitions by the National Portrait Gallery included a 1792 life portrait of Thomas Paine; a 1910 poster of the first black heavyweight champion, Jack Johnson; and an extremely rare Man Ray photograph (ca. 1922) of Gertrude Stein posing for the Jo Davidson portrait sculpture that is one of the best-known objects in the museum's collection.

The Archives of American Art acquired more than 121 collections this year, including the papers of ceramist and teacher Frans R. Wildenhain, sculptor Dimitri Hadzi, and painter and educator Edmund C. Tarbell, as well as a select group of Winslow Homer letters.

The National Air and Space Museum made two his-

toric acquisitions: A Soviet SS-20 and an American Pershing II nuclear missile, both banned by the 1987 Intermediate Range Nuclear Forces (INF) Treaty between the United States and the Soviet Union, were placed on display together, symbolic of the effort to end the nuclear arms race. Other significant additions to the museum's collection were the Cliff Krainik ballooning collection of nineteenth- and twentieth-century photographs and memorabilia and an SR-71 reconnaissance aircraft, delivered to Washington-Dulles International Airport by the U.S. Air Force in a record-breaking 68-minute cross-country flight.

The extensive collections of the National Museum of American History grew larger and more diverse this year with the addition of thousands of objects. Artifacts and archival material in the Edward Orth World's Fair Collection give the museum one of the world's most comprehensive collections of materials on the 1939 New York World's Fair. Other acquisitions included Benny Goodman's clarinet, the first computer-driven piano, a "Funny Car" dragster, and the Eubanks Collection of photographs documenting the origin and evolution of the Black Panther Party.

Additions to the 120 million items in the collections of the National Museum of Natural History included a 396.30-carat kunzite necklace and a nearly flawless 120-pound specimen of Brazilian, transparent smoky citrine (yellow quartz), both gifts to the gem and mineral collection. The museum acquired a significant collection of neotropical mosquitos numbering 14,000 specimens, as well as the Horton Collection of Guatemalan-Mayan textiles, which contains fine examples of Guatemalan costumes.

The Smithsonian Institution Libraries enhanced its holdings with the Lewis and Valentine collection, which is noted for its books on Japanese gardens and practical horticultural topics. The Libraries' Special Collections added an important 1712 document to its extensive collection of Isaac Newton materials, and the Libraries purchased the Robert D. Mussey, Jr., collection on varnishes and furniture finishes, which will support the research and work of furniture conservators. The Smithsonian Institution Archives accessioned 700 cubic feet of records and other historical material, including Hornblower and Marshall drawings for the Natural History Building.

The care and management of the nation's collections



In one of the Smithsonian's cooperative programs in the Washington metropolitan area, Carmel Ervin, education specialist at the National Museum of Natural History, conducts an education workshop for science teachers. (Photograph by Eric Long)

is a complex and critical endeavor that goes on largely behind the scenes in Smithsonian museums and at the Museum Support Center in Suitland, Maryland. Cataloguing and recordkeeping, storage, preservation and conservation, and protection are all tasks that fall under the general rubric of collections care and management.

The Smithsonian's official overall collections management policy was updated and officially approved by Secretary McC. Adams in 1990. Developed under the auspices of the Office of the Registrar, the policy directs collecting units of the Institution to revise their individual collections policies and develop formal collecting plans.

One-third of the Smithsonian Institution Libraries' collections are at risk of disintegration, and this year the Libraries began an ambitious effort to rescue them. Under the Brittle Books Program, conservators will restore selected deteriorated materials or replace them with reprints, microfilm, or photocopies.

A special technical section of the National Museum of American Art's exhibition "Albert Pinkham Ryder," created in collaboration with the Conservation Analytical Laboratory (CAL), gave visitors a glimpse of the

challenges of art conservation. A highlight of the year at CAL was the graduation of the first class in the Furniture Conservation Training Program.

The labor-intensive process of restoring historic aircraft and spacecraft takes place at the National Air and Space Museum's Paul E. Garber Preservation, Restoration, and Storage Facility. This year, work continued on engines that will enhance the interpretation of World War I in a new gallery scheduled to open in 1992 and on the *Enola Gay*, the aircraft that dropped the atomic bomb on Hiroshima. At the National Museum of American History, the Division of Conservation provided specialized laboratory treatment for 2,250 objects. Among them were George Washington's tent, which required 450 hours of painstaking cleaning, and the historic ENIAC computer, which needed 530 hours of work to prepare it for display in the "Information Age" exhibition.

Behind the scenes, a network of administrative offices supports the smooth operations of Smithsonian bureaus and offices. Among the varied services this central support system provides are security for the nation's collections, management of design and construction

projects in Smithsonian facilities, personnel administration, and oversight of the historic preservation of Smithsonian buildings.

This year, several administrative offices undertook activities designed to improve their service to bureaus and offices throughout the Institution. The Office of Design and Construction, which managed 40 construction projects this year, instituted a more efficient project management structure. The Office of Information Resource Management developed an information resource management plan and completed a five-year study in preparation for the creation of an integrated communications network. A comprehensive review of the Office of Personnel Administration also began this year.

Preparing to meet the challenges of the future requires physical changes to ensure that Smithsonian facilities serve the needs of the collections, the public, staff, and visiting scholars. The Smithsonian Tropical Research Institute (STRI) completed major additions to its physical facility during 1990, while the Freer Gallery of Art and the National Museum of American History continued building renovation projects. Plans were also under way for an extension of the National Air and Space Museum.

In March, STRI dedicated its new Earl Silas Tupper Research and Conference Center in Panama City, which houses offices and state-of-the-art laboratories. At STRI's Barro Colorado Island site, new housing, dining, and conference facilities also opened in March. Work progressed on the Freer Gallery of Art's four-year architectural renovation, which will result in much-needed new space for collections storage, conservation, and research; will link the Freer with its sister institution, the Arthur M. Sackler Gallery; and will improve exhibition space and visitor facilities. A team of paintings conservators began a painstaking two-year research and conservation project to restore James McNeill Whistler's Peacock Room, which is permanently installed in the Freer and considered the most important nineteenth-century interior in an American museum. In its 25th anniversary year, the National Museum of American History continued the section-by-section renovation of its building, which has been accomplished without closing the museum to the public. Plans

progressed for the National Air and Space Museum extension, as the Board of Regents approved Washington-Dulles International Airport as the site for the new facility.

Staff Changes

This year, the Smithsonian sustained a number of changes in its top management. In July, Dean W. Anderson announced his resignation from the position of under secretary, where he had served for over five years; in September, he left the Smithsonian to join the staff of the Woodrow Wilson International Center for Scholars. Nancy D. Suttentfield, director of the Office of Planning and Budget, assumed the position of acting under secretary while a search for a permanent successor was conducted, and Mary J. Rodriguez was appointed the acting director of the Office of Planning and Budget. Just as the fiscal year drew to a close, Secretary Adams announced the appointment of Carmen E. Turner, then general manager of the Washington Metropolitan Area Transit Authority, as the next under secretary.

Ralph Rinzler, who had served as the assistant secretary for public service since 1983, retired from that position to become an adviser to the secretary in early February. James C. Early, who had been deputy assistant secretary, served for the remainder of the year as the acting assistant secretary for public service. And Wilton S. Dillon, formerly director of the Office of Interdisciplinary Studies, assumed the new position of senior scholar in residence.

In the last year, several new outstanding staff were appointed to senior management positions. These included W. Richard West, Jr., as the director of the National Museum of the American Indian; Richard J. Wattenmaker as the director of the Archives of American Art; Thomas D. Blair as the inspector general; Marilyn S. Marton as director of the newly configured Office of Human Resources; Claudine K. Brown as interim director of the African American International Study; Marshall J. Wong as director of the Smithsonian Office of Wider Audience Development; and Robert P. Dillman as the director of the Office of Design and Construction.

Report of the Board of Regents

At their meeting on January 29, 1990, the Board of Regents voted to accept from the Museum of the American Indian, Heye Foundation, its collection of books, objects, works of art, endowment, and certain properties for the purpose of establishing the National Museum of the American Indian as authorized by Public Law 101-185. The regents' acceptance was conditioned upon the receipt of New York court rulings consistent with the May 8, 1989, memorandum of understanding between the Smithsonian and the Heye Foundation. At the same time, the regents appointed members of the first Board of Trustees of the National Museum of the American Indian. They included Ernest Leroy Boyer, W. Roger Buffalohead, Barber B. Conable, Jr., Vine Deloria, Jr., Suzan Shown Harjo, Norbert Hill, Frederick E. Hoxie, Daniel K. Inouye, Jennie Joe, Alvin Josephy, Julie Johnson Kidd, Clara Sue Kidwell, Navarre Scott Momaday, Curt Muser, Waldemar A. Nielson, Alfonso Ortiz, Janine Pease-Windy Boy, David Rockefeller, Helen M. Scheirbeck, David Hurst Thomas, Arturo Warman, Thomas R. White, Rosita Worl, and ex officio, the secretary and one assistant secretary.

The regents considered "best and final" offers from the governors of Virginia and Maryland, as well as a generous proposal from the City of Denver, and reaffirmed their preference for Washington-Dulles International Airport as the site for the proposed extension of the National Air and Space Museum. The board encouraged the secretary to undertake further studies and planning to ensure a viable legislative proposal for congressional authorization of the project.

Among other actions, the regents discussed matters of organization and management, approved the publication of the *Five-Year Prospectus, 1991-1995*; accepted in principle a proposed four-year fund-raising effort and established an ad hoc Advisory Committee on Planning and Development; incorporated into the endowment funds certain restricted, quasi-unrestricted, and other unrestricted funds; nominated Anne L. Armstrong to serve an additional term as regent; appointed Thomas M. Keresey to the Investment Policy Committee; awarded the Henry Medal to August Heckscher; adopted a policy statement on senior-level compensation and authorized the secretary to implement adjustments to trust fund salaries in January 1991; and approved the planned renovation of the National Museum of Natural History/National Museum of Man

and construction of additional space in the museum's East Court. The regents also appointed or reappointed John A. Friede, James L. Hudson, Frieda Rosenthal, Brian C. Leyden, and Michael L. Lomax to the Commission of the National Museum of African Art; Frank Stanton to the Commission of the National Portrait Gallery; and Margaret Dodge Garrett, Wilbur L. Ross, Jr., Edwin I. Colodny, Rita R. Fraad, and Richard J. Schwartz to the Commission of the National Museum of American Art.

In a variety of committee reports, it was indicated that the Audit and Review Committee had examined corrective measures taken to stem inventory losses and enhance cash management in the museum shops, discussed the inspector general's first semiannual report, and reviewed the complexities of renovating the Natural History Building. Reports also revealed that the Personnel Committee found no evidence of conflict of interest in managements' statements of personal financial interests and that the Investment Policy Committee amended its investment guidelines. In his report, the secretary described the conditions under which the Smithsonian Tropical Research Institute had been operating amidst strife in Panama, the status of *Air & Space/Smithsonian* magazine, and the prospect of charging for admission to an unusual exhibition of life-like mechanical dinosaurs at the Natural History Museum. The Financial Report detailed the status of the Institution's funds, noting particularly the effects of Gramm-Rudman-Hollings sequestration and other budget cuts. Additional status reports were given on affirmative action, the African American Institutional Study, construction and renovation, litigation, refinements to planning and budget processes, media developments, and the activities of the Smithsonian Council.

The traditional regents' dinner had been held on the preceding evening, January 28, in the Arts and Industries Building in honor of the prospective members of the Board of Trustees of the National Museum of the American Indian. Speakers included the chancellor, the secretary, Julie Kidd (chair of the Heye Foundation Board of Trustees), and Alan Parker, who spoke on behalf of Senator Inouye.

The regents' second meeting of the year took place on May 7, 1990. At this meeting the regents requested their congressional members to introduce and support legislation authorizing the board to plan and design an

extension of the National Air and Space Museum at Dulles Airport. The regents nominated I. Michael Heyman to the board, effective upon the expiration of the term of A. Leon Higginbotham, Jr., in October 1990. The regents also discussed a report on equal employment opportunity over the last five years; they noted that the report reflected more progress and effort than is generally recognized and urged management's continued vigilance and effort toward expanded opportunities for minorities.

Among other actions, the regents amended their bylaws to assist in handling essentially routine administrative responsibilities under secretarial authority, agreed on a total return payout rate for fiscal year 1991, approved adjustments to the budgets of appropriated and nonappropriated trust funds to enable management to achieve balanced budgets by year's end, incorporated two quasi-unrestricted funds into the endowment, accepted a plan for preparing for an endowment campaign with the assistance of unrestricted trust funds, accepted the annual report for fiscal 1989, and approved changes to the bylaws of the Advisory Council of the Cooper-Hewitt Museum and reappointed Donald Bruckmann, Marietta Tree, Karen Johnson Boyd, Joan K. Davidson, Joanne Du Pont, Harmon Goldstone, August Heckscher, Kenneth Miller, Arthur Ross, and Robert Sarnoff to membership thereon.

In its report, the Investment Policy Committee noted its endorsement of an endowment goal of \$500 million by 1995. The Audit and Review Committee noted that Coopers & Lybrand had given the Institution's financial statements for fiscal 1989 a clean opinion and had recommended that steps be taken to increase central controls as the Institution implements increasingly decentralized entrepreneurial and development activities. The Audit and Review Committee also noted that the inspector general had reported on weaknesses in the accessibility program for the handicapped, in selected areas of collections management, and in certain aspects of construction and safety management.

In his report, the secretary noted progress toward a management study, the potential sale of real estate, and the controversy surrounding the Smithsonian's consideration of locating the submillimeter telescope array atop Mount Graham in Arizona. The secretary also reported on activities leading toward a smooth transition of the Museum of the American Indian, Heye Founda-

tion, to the National Museum of the American Indian; he noted, too, the preliminary work on fund-raising for the new museum and the trustees' consideration of space within the Custom House in New York City. Additional reports were given on the African American Institutional Study, the need for administrative and programmatic space in proximity to the National Mall, recent limitations to museum security and public accessibility, major recruitments, construction and renovation, the recommendations of the secretary's Planning Advisory Group, litigation, and Smithsonian interest in a potential research site in Kenya.

The traditional regents' dinner was held on the preceding evening, May 6, in the National Museum of American History, where the regents and their guests attended the opening reception for the "Information Age" exhibition. The speakers included David Acheson, Secretary Adams, and Roger Kennedy.

The third and final meeting of the year was held on September 17, 1990. At this meeting the secretary discussed with the regents his plan to appoint Mrs. Carmen Turner as under secretary in place of Dean Anderson, who had resigned over the summer. The secretary also alluded to other potential changes in the top management of the Institution.

In a wide variety of actions, the regents conferred upon A. Leon Higginbotham, Jr., the title of regent emeritus upon the expiration of his term of service on the board; approved budgets for fiscal 1991 and the federal budget request for fiscal year 1992; accepted into the endowment restricted funds provided from the Museum of the American Indian, Heye Foundation; authorized the secretary to implement new pay systems for the senior federal and trust staff, approved funding for the support of a fund-raising campaign for the National Museum of the American Indian; encouraged the secretary to explore private sector funding for the extension of the National Air and Space Museum; and authorized the secretary to negotiate most favorable terms for the lease or lease/purchase of an administrative service center. The regents also authorized the secretary to arrange for the sale of excess property at the Smithsonian Environmental Research Center, awarded the Henry Medal to Eloise Spaeth, and approved the naming of a gallery in the National Museum of Natural History in honor of Harry Winston.

The Audit and Review Committee reported that

Benefactors

work on the implementation of the new general ledger system has been progressing, but complexities have made progress slower and more difficult than desired. The committee also noted that changes in audit findings and follow-up procedures will give selective emphasis to the most significant issues. The Investment Policy Committee reported on the status of the endowment and noted that its composition falls within the committee's guidelines.

The regents appointed Juanita P. Baranco, Paul R. Ehrlich, Henry Loomis, Robert H. Malott, Jeffery W. Meyer, Homer A. Neal, David R. Pilbeam, S. Dillon Ripley, II, Nicholas M. Salgo, James W. Valentine, Warren Herbert Wagner, Jr., David B. Wake, Milton H. Ward, Ronald H. Winston, and E-An Zen to the National Council of the National Museum of Natural History/National Museum of Man. They also appointed Frederick Brown to the Commission of the National Museum of American Art.

Among other actions, the regents gave preliminary consideration to the draft *Five-Year Prospectus, 1992–1996*, and discussed the redirection of earlier fund-raising goals toward those that will bring relief to current budget strains or respond to a statutory mandate. The board also received reports on the African American Institutional Study, equal opportunity advances over a six-month period, and Quincentenary programs, as well as a host of status of reports on various Smithsonian activities.

A reception for the regents and their guests was held at the home of Vice President and Mrs. Danforth Quayle on the evening of September 16. It was followed by a dinner in the Milestones of Flight gallery of the National Air and Space Museum. Introduced by the chancellor, Secretary Adams touched briefly on the importance of the Institution's partnership with corporate America. He also recognized two special guests, Regent Emeritus Lindy Boggs and Senator James McClure, whose dedication to and support of the Smithsonian will be sorely missed on Capitol Hill upon their retirement from the Congress.

The Smithsonian gratefully acknowledges the support of the individuals, foundations, and corporations whose gifts, bequests, and contributing memberships aided the work of the Institution during the past fiscal year, October 1, 1989, through September 30, 1990.

The Smithsonian owes its founding to the generosity of one individual. During most of its history since 1846, the Institution has relied on a combination of both federal and private funding to carry out the terms of James Smithson's will. As a trust instrumentality of the United States, the Smithsonian has received federal appropriations to support its basic operations and selected initiatives.

The trust funds play a vital role in providing the Institution with the flexibility and independence essential to its creative growth. The national and international reputation for excellence held by the Smithsonian is in large part a result of the innovative, imaginative, and special activities underwritten by public-spirited private citizens. Of particular importance are gifts that have supported the Smithsonian's core functions—exhibitions, collections acquisition, research, and public education—that are central to its achievements.

Certain donors have requested anonymity. If the name of any other donor has been omitted, it is unintentional and in no way lessens the Smithsonian's appreciation.

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Financial Report

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Ms. Patricia F. Wheeler
Ms. Mary Wibel
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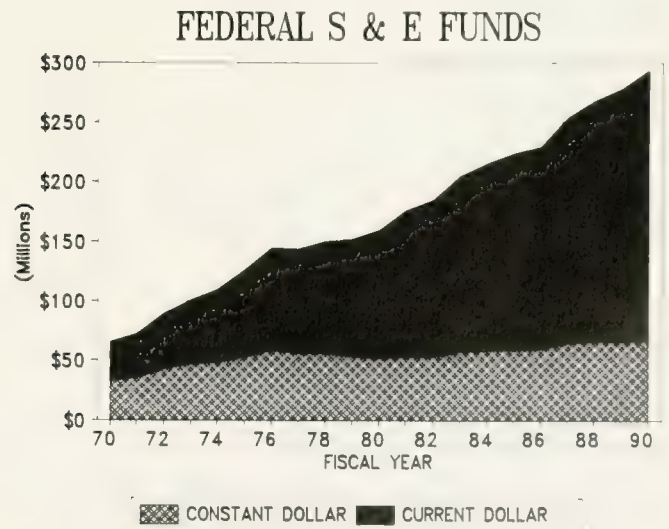
The Smithsonian concluded 1990 under the threat of sequestration to meet Gramm-Rudman targets, an action that would have necessitated the furloughing of both federal and trust personnel and related cutbacks in service to the public. A slowing economy compounded by international concerns and continuing unfavorable publicity about Washington, D.C., as a tourist center dampened private-side revenues; these factors are likely to have a protracted effect.

Amidst all the doom and gloom, the year ended on a bright note as the regents accepted into the endowment at their September 17 meeting certain restricted funds for the National Museum of the American Indian. Thus, the Institution's financial statements for 1990 for the first time fully reflect the incorporation into the Smithsonian of this significant addition.

Operations

Federal appropriations provided \$225,479,000 to fund ongoing operations, almost a 7 percent increase over fiscal 1989. New support was included for initial operating costs of the National Museum of the American Indian, a variety of cultural diversity programs, including the Columbus Quincentenary, and global change research projects.

Government agencies provided project grants and



contracts to fund research at the Smithsonian Astrophysical Observatory, the National Museum of Natural History/National Museum of Man, and the Smithsonian Tropical Research Institute. Funded projects included a study of the ecological effects of an oil spill, research into the condition of the upper atmosphere, investigation of the geologic and tectonic activity of the southwest, and a series of conservation workshops.

Nonappropriated income from gifts, grants, endowments, current investments, and revenue-producing activities supplemented federal funds. Unrestricted trust funds were allocated to base support and Institution-wide priorities. Allocations were made, as in the past, to fund internal award programs for acquisitions, special exhibitions, fellowships, scholarly studies, and educational outreach.

In addition, \$3 million in revenue generated from auxiliary enterprises was transferred to endowment following past practice to strengthen this important asset. The 1990 operating surplus was added to the unrestricted trust fund balance, which serves as working capital.

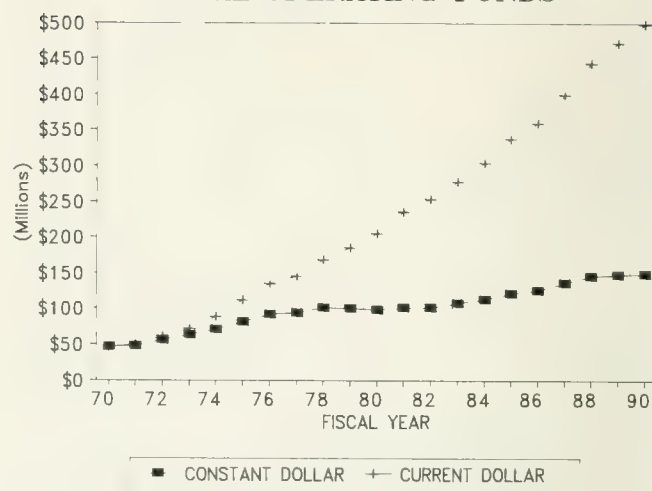
The Smithsonian is especially grateful to its many friends in the private sector, whose generosity contributed vitally to its work. Individuals, foundations, and corporations are listed in the "Benefactors" section of this annual report. Private funding helped support such activities as the Minimum Critical Size Ecosystem Project, the traveling exhibition "Moscow Treasures," international conservation training, and the Philadelphia Arts Documentation Project.

Source of Funds	Gross Revenue (\$1,000s)	Net Income (\$1,000s)	Net Income (%)
Federal Appropriation	225,479	225,479	69
Government Grants and Contracts	29,089	29,089	9
All Trust Sources	243,570	70,205	22
Total Available for Operations	498,138	324,773	100

Financial Management Activities

The ongoing effort to improve the automated financial systems of the Treasurer's Office progressed in a timely

TOTAL OPERATING FUNDS



fashion. General ledger and funds control software were installed on the Institution's mainframe computer. The system will go "live" after a period of parallel testing early in the new fiscal year. Further refinements and upgrades to the labor accounting system and the personnel cost projection system have already been made.

The Office of Sponsored Projects expanded its data base, with resulting efficiencies in seeking and administering external funds. Similarly, the Office of Risk Management made significant strides in the Institution's computerized disaster preparedness system.

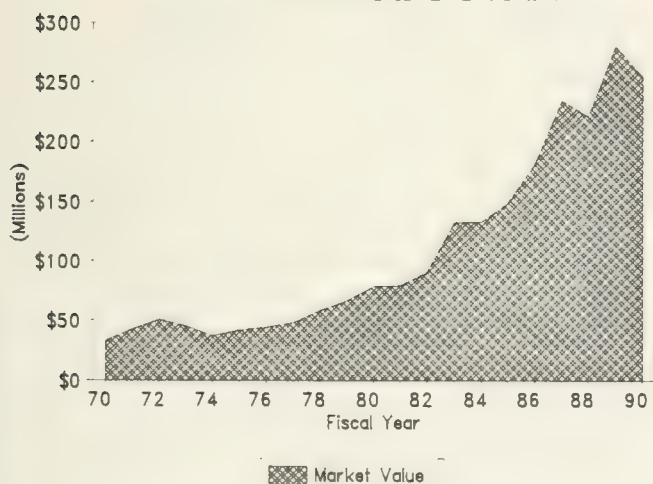
The treasurer oversees four revenue-producing activities through the Business Management Office: Museum Shops, Mail Order, Product Development and Licensing, and Concessions. Here, too, substantive effort was expended on improving support systems, most notably in the Museum Shops and in Mail Order. Although visitation on the National Mall was down for the second straight year, posing significant challenges to sales growth, these activities contributed more to operations in 1990 than in 1989.

Endowment

The Smithsonian endowment fund reached an all-time high of \$283.2 million during July of the fiscal year.

However, the Mideast crisis combined with the federal budget deliberations drove the securities markets down thereafter. By September 30, 1990, the market value of the fund had dropped to \$254.5 million, down 9 percent for the year. The Smithsonian was not as adversely hurt as it might have been. Over the course of the year, the investment guidelines had been modified to increase the minimum requirement for investments in nonequity issues. At year end, the Institution had 30 percent of its portfolio in bonds, 14 percent in cash and cash equivalents, and 56 percent in equities.

TOTAL ENDOWMENT FUNDS



The Institution continues to utilize its two balanced managers: Fiduciary Trust Company of New York, and Miller, Anderson and Sherrerd. During the year, \$10 million was invested with Wellington Management Company in over-the-counter stocks. Following the close of the fiscal year, the Smithsonian's Investment Policy Committee redeployed \$45 million previously handled by an equity manager. In a separate move, two minority investment managers were hired: Calvert-Ariel and the Minority Equity Trust Company.

Regent Barnabas McHenry chairs the Investment Policy Committee of the Board of Regents. During the year, Thomas J. Watson, Jr., resigned from the committee after more than 10 years of dedicated and insightful service, for which the Institution is most grateful. Re-

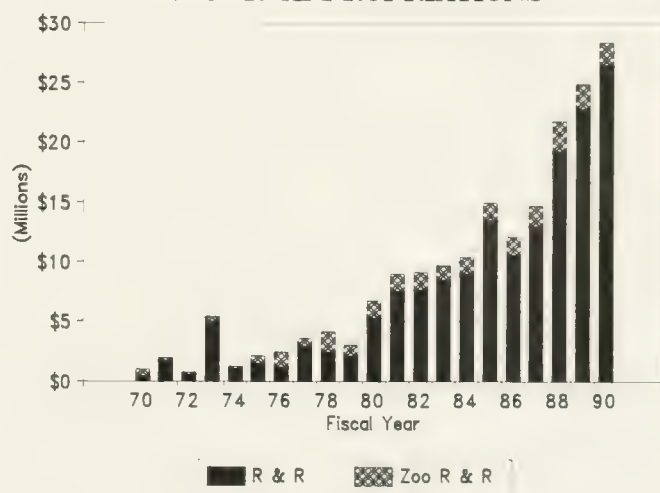
placing Mr. Watson is Thomas J. Keresey, chairman, Palm Beach Capital Management, and a member of the National Board of the Smithsonian Institution. The Institution remains indebted to Donald Moriarty, Charles H. Mott, Jane Mack Gould, John W. English, and Regent Norman Mineta for their continuing service.

Construction and Plant Funds

In addition to its appropriation for salaries and other operating expenses, the Institution receives federal support for the repair and restoration of its facilities. In fiscal 1990, \$26,468,000 was appropriated for work on fire detection and suppression systems, utilities, facade restoration and replacement, and routine repairs. Appropriations for other construction activities included \$4,040,000 for major alterations and modifications, as well as \$730,000 for construction planning.

Also, \$1,930,000 was provided for new Smithsonian Tropical Research Institute research facilities;

R & R APPROPRIATIONS



\$1,620,000 was provided for the planned Museum of the American Indian. A separate appropriation of \$6,423,000 allowed the National Zoological Park to continue a repair program and other projects in its master construction plan.

Audit Activities

The Institution's funds, federal and nonappropriated, are audited annually by an independent public accounting firm, currently Coopers & Lybrand. Coopers & Lybrand's unqualified report for fiscal 1990 is reprinted on the following pages. During the year, consultants from Coopers & Lybrand completed an analysis of the Institution's overhead system, in addition to the annual audit, and provided support for the financial systems improvement project.

The Smithsonian's internal audit staff, part of the Office of the Inspector General, regularly reviews the Institution's financial activities and fiscal systems, assists the outside auditors, and undertakes special projects, as required. Mr. Thomas D. Blair joined that office as the Institution's first Inspector General in June 1990. He comes to the Institution after a distinguished career, most recently as Regional Manager of the Office of the Inspector General of the Veterans Administration.

The Defense Contract Audit Agency audits grants and contracts received from federal agencies and monitors allocated administrative costs.

The Audit and Review Committee of the Board of Regents, chaired by Regent David C. Acheson, met three times during the fiscal year pursuant to its fiduciary responsibilities under legislation pertinent to the Institution and the bylaws of the Board of Regents. The committee reviewed the 1989 audit performed by Coopers & Lybrand and the 1990 audit plan. It also received reports from the Office of the Inspector General on a wide variety of institutional programs and procedures. Other items on the committee's agenda included auxiliary internal controls and the implementation of the new financial systems.

Related Organizations

The National Gallery of Art, the John F. Kennedy Center for the Performing Arts, and the Woodrow Wilson International Center for Scholars were established by Congress within the Institution. Each organization is administered by its own board of trustees and reports independently on its financial status. The Smithsonian provides the Woodrow Wilson International Center for

Scholars with certain fiscal, administrative, and support services plus office space on a reimbursement basis.

Administrative services are provided by the Institution on a contract basis for Reading is Fundamental. The Friends of the National Zoo, an independent non-profit organization, operates under a concessions contract; proceeds from Friends activities accrue to the Zoo.

Postscript

On October 1, 1990, Ann R. Leven tendered her resignation as Treasurer of the Institution to accept a newly created position at the National Gallery of Art. Ms. Leven's six years at the Institution were ones of significant accomplishment, most notably the strengthening of the Institution's trust fund base. Adequate working capital and reserves are now in place. Museum shops, Mail Order, Product Development and Licensing, and concession revenues have grown dramatically since she arrived in 1984. The endowment nearly doubled with solid investment performance and careful monitoring.

The new restaurant facility at the National Air and Space Museum stands as a tribute to Ms. Leven's financial creativity and tenacity, as do considerable improvements to the Institution's financial systems, both in place and planned. In a departing statement, Ms. Leven said, "I applaud the Treasurer's Office staff. Their loyalty and dedication has made an impossible job possible. We have learned from each other and seen the fruits of our joint accomplishments."

Smithsonian Institution Operating Funds

FISCAL YEARS 1986, 1987, 1988, 1989, 1990

(In \$1,000,000s)

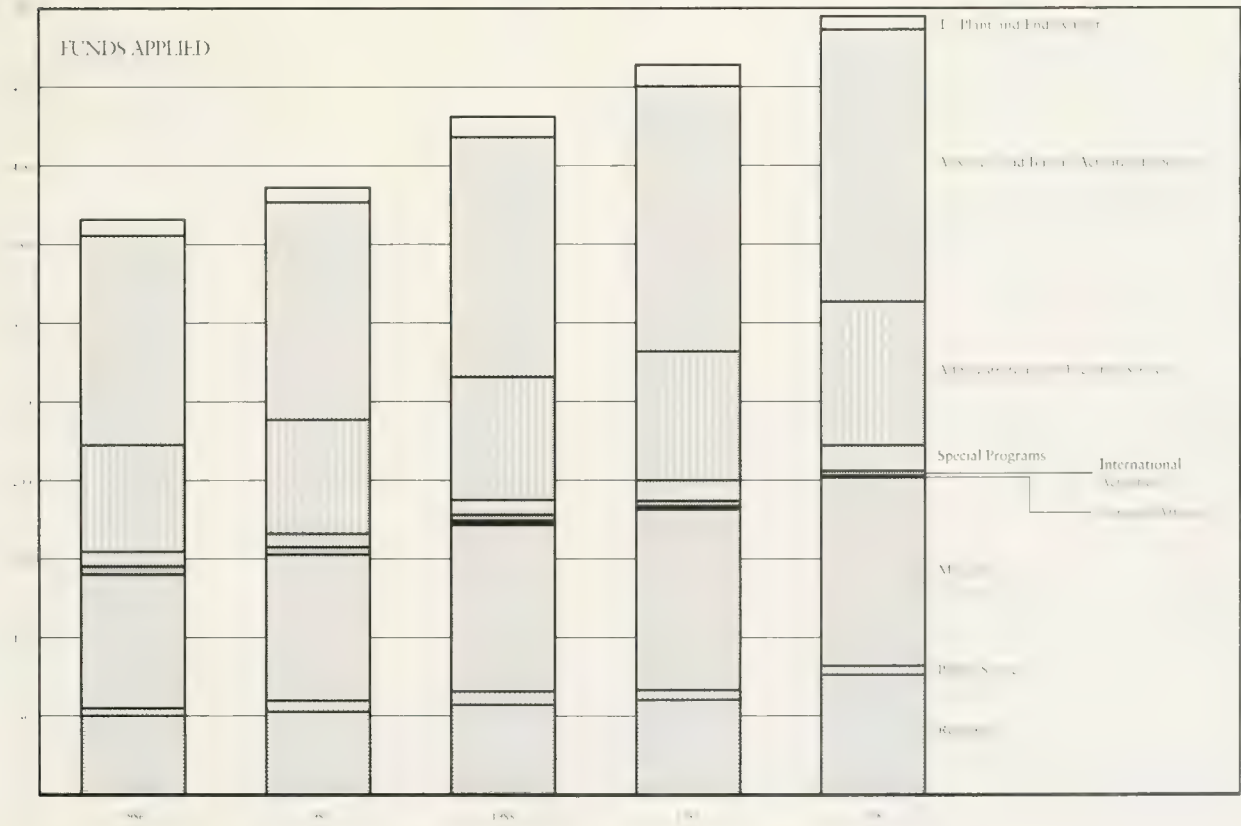
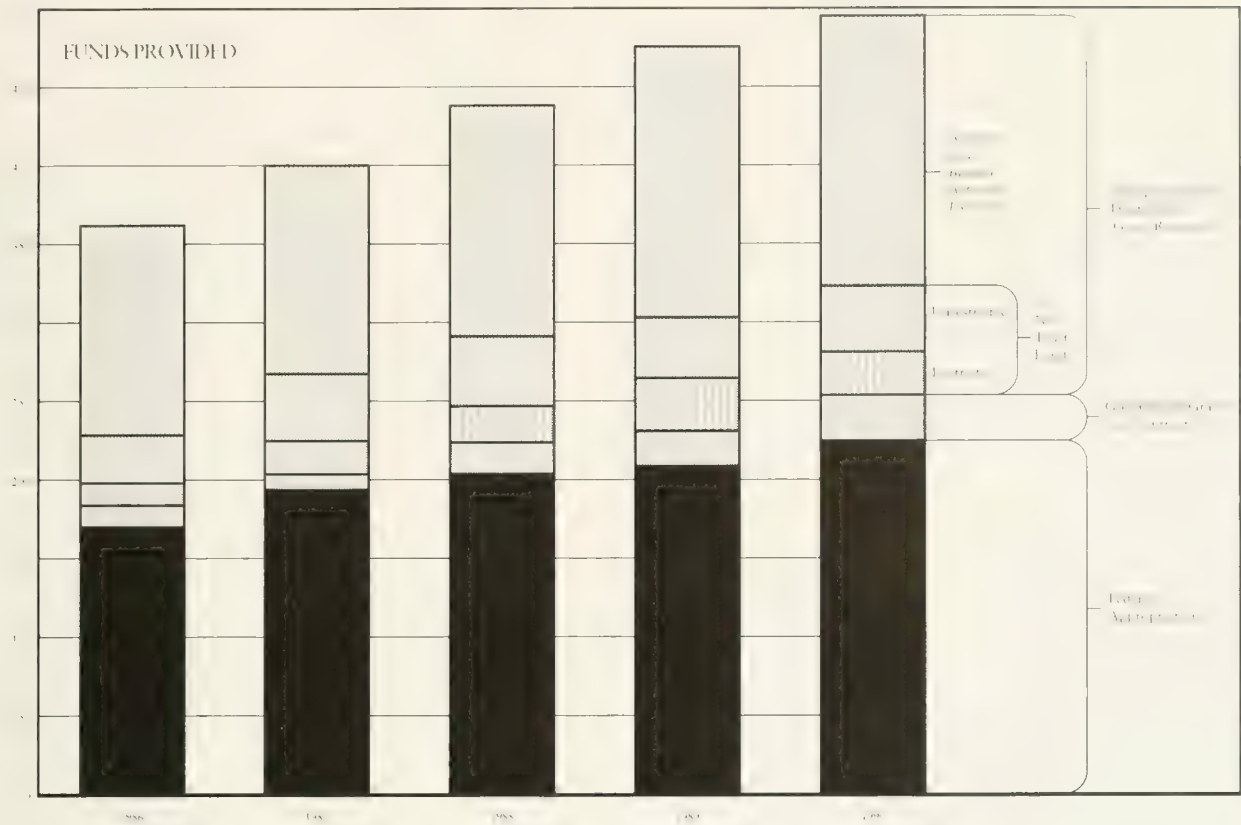


Table 1. Financial Summary (in \$1,000s)

	FY 1989	FY 1990
INSTITUTIONAL OPERATING FUNDS		
FUNDS PROVIDED:		
Federal Appropriations—Salaries & Expenses	\$ 211, 240	\$ 225,479
Government Grants & Contracts	20,977	29,089
Nonappropriated Trust Funds:		
For Restricted Purposes	30,412	27,672
For Unrestricted & Special Purposes:		
Auxiliary & Bureau Activities Revenues—Gross	195,786	201,347
Less Related Expenses	(169,142)	(173,365)
Auxiliary & Bureau Activities Net Revenue	26,644	27,982
Investment, Gift, & Other Income	13,771	14,551
Total Net Unrestricted & Special Purpose Revenue	40,415	42,533
Total Nonappropriated Trust Funds—Gross	239,969	243,570
—Net	70,827	70,205
Total Operating Funds Provided—Gross	472,186	498,138
—Net	303,044	324,773
FUNDS APPLIED:		
Research	67,419	79,641
Less SAO Overhead Recovery	(3,807)	(4,429)
Museums	111,020	121,454
Public Service	7,104	6,189
Institutional Initiatives	—	376
External Affairs	2,347	2,974
International Activities	2,094	1,874
Special Programs	12,748	15,456
Associates & Business Management	525	443
Administration—Federal (see Note 1)	17,497	19,690
Nonappropriated Trust Funds	12,444	14,656
Less Smithsonian Overhead Recovery	(10,825)	(11,945)
Facilities Services	63,228	67,003
Total Operating Funds Applied	281,794	313,379
Transfers (Nonappropriated Trust Funds)		
Unrestricted Funds—To Plant	—	(5)
—to Endowment	6,189	5,512
Restricted Funds—to Endowment	6,641	2,164
Total Operating Funds Applied & Transferred Out	294,624	321,050
CHANGES IN FUND BALANCES:		
Nonappropriated Trust—Restricted Purpose	4,371	4,028
Unrestricted—General Purpose	4,265	468
—Special Purpose	(586)	1,504
Appropriated (see Note 2)	370	(2,277)
Total	\$ 8,420	\$ 3,723
YEAR-END BALANCES—NONAPPROPRIATED TRUST FUNDS:		
Restricted Purpose	\$ 20,948	\$ 24,975
Unrestricted—General Purpose	13,300	13,769
—Special Purpose	33,808	35,312
Total	\$ 68,056	\$ 74,056
OTHER FEDERAL APPROPRIATIONS (see Note 3)		
Canal Zone Biological Area Fund	\$ 101	\$ 137
Construction	34,695	41,211
Total Federal Appropriation (Including S & E above)	\$ 246,036	\$ 266,827

Note 1: Includes unobligated funds returned to Treasury: FY 1989—\$89 thousand; FY 1990—\$89 thousand.

Note 2: The fund balance represents multiple-year funding for instrumentation, and includes an obligation that will be covered by a future year's appropriation.

Note 3: Excludes \$1,992 thousand received in FY 1989 and \$2,001 thousand received in FY 1990 from the Department of State for research projects in India.

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1990
(Excludes Canal Zone Biological Area Fund, Plant Funds, and Endowments) (in \$1,000s)

	Federal Funds	Total Non- Appropriated Funds	Nonappropriated Trust Funds				
			Unrestricted			Restricted	
			General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
FUND BALANCES—Beginning of Year	\$ 370	\$ 68,056	\$13,301	\$ —	\$33,808	\$20,947	\$ —
FUNDS PROVIDED:							
Federal Appropriations	225,479	—	—	—	—	—	—
Investment Income	—	17,870	7,840	—	1,483	8,547	—
Government Grants and Contracts	—	29,089	—	—	—	—	29,089
Gifts	—	21,615	206	7,285	710	13,414	—
Sales and Membership Revenue	—	194,062	—	185,048	9,014	—	—
Other	—	10,023	1,187	—	3,125	5,711	—
Total Provided	225,479	272,659	9,233	192,333	14,332	27,672	29,089
Total Available	225,849	340,715	22,534	192,333	48,140	48,619	29,089
FUNDS APPLIED:							
<i>Research:</i>							
Assistant Secretary	1,046	824	328	—	38	186	272
Astrophysical Observatory	12,313	31,651	4,420	—	2,392	130	24,709
Less Overhead Recovery	—	(4,429)	(4,429)	—	—	—	—
Tropical Research Institute	5,871	2,628	413	—	899	129	1,187
Environmental Research Center	1,912	912	96	—	289	56	471
National Zoological Park	14,373	1,933	140	—	751	470	572
Smithsonian Archives	611	225	215	—	10	—	—
Smithsonian Libraries	5,547	721	536	—	172	13	—
Total Research	41,673	34,465	1,719	—	4,551	984	27,211
<i>Museums:</i>							
Assistant Secretary	806	772	418	—	241	99	14
Museum Programs	499	106	21	—	71	14	—
National Museum of Natural History/ Museum of Man	27,475	7,002	408	—	2,988	2,716	890
National Air & Space Museum	10,100	6,618	307	—	4,764	1,159	388
National Museum of American History	15,160	6,423	146	—	2,015	4,262	—
National Museum of American Art	5,089	2,840	209	—	1,877	754	—
National Portrait Gallery	4,653	520	36	—	272	200	12
Hirshhorn Museum and Sculpture Garden	3,442	3,904	66	—	1,190	2,648	—
Center for Asian Art	4,280	4,179	93	—	419	3,667	—
Archives of American Art	1,012	1,334	96	—	33	1,205	—
Cooper-Hewitt Museum	1,511	3,132	913	—	1,520	689	10
National Museum of African Art	3,473	452	44	—	385	23	—
Anacostia Neighborhood Museum	960	76	43	—	32	1	—
National Museum Act	2,530	—	—	—	—	—	—
Conservation Analytical Laboratory	1,908	105	—	—	87	18	—
Office of Exhibits Central	790	24	—	—	24	—	—
Traveling Exhibition Service	2,841	2,810	329	—	1,892	575	14
Total Museums	86,529	40,297	3,129	—	17,810	18,030	1,328
<i>Public Service:</i>							
Assistant Secretary	263	647	540	—	92	13	2
Telecommunications	316	579	594	—	(117)	93	9
Vistor Information and Associates' Reception Center	150	1,192	1,136	—	49	7	—
Office of Public Affairs	688	803	781	—	22	—	—
Smithsonian Press	1,238	18,607	—	18,403	49	155	—
Total Public Service	2,655	21,828	3,051	18,403	95	268	11
Institutional Initiatives:	—	376	362	—	—	14	—

Table 2. Source and Application of Operating Funds for the Year Ended September 30, 1990
(Excludes Canal Zone Biological Area Fund, Plant Funds, and Endowments) (in \$1,000s) (*continued*)

	Federal Funds	Total Non-Appropriated Funds	Nonappropriated Trust Funds				
			Unrestricted			Restricted	
			General	Auxiliary Activities	Special Purpose	General	Government Grants and Contracts
<i>External Affairs:</i>							
Assistant Secretary	35	705	530	—	8	161	6
Development Office	—	1,981	1,893	—	42	46	—
Office of Special Events	64	189	189	—	—	—	—
Media Activities	—	11	—	11	—	—	—
Total External Affairs	99	2,886	2,612	11	50	207	6
International Activities	853	1,018	598	—	247	66	107
<i>Special Programs:</i>							
American Studies & Folklife Program	1,118	1,890	851	—	424	202	413
International Environmental Science Program	765	—	—	—	—	—	—
Academic & Educational Program	1,218	3,269	585	—	2,483	199	2
Museum Support Center (see Note 3)	7,271	—	—	—	—	—	—
Total Special Programs	10,372	5,159	1,436	—	2,907	401	415
Associate Programs	—	97,878	288	97,423	77	90	—
Business Management	—	49,728	—	49,728	—	—	—
Administration	19,601	15,911	11,984	—	2,793	1,123	11
Less Overhead Recovery	—	(11,945)	(11,945)	—	—	—	—
Facilities Services	65,885	1,387	1,189	—	197	1	—
<i>Transfers Out/(In):</i>							
Treasury (see Note 1)	89	—	—	—	—	—	—
Programs (see Note 2)	—	—	6,358	—	(6,358)	—	—
Net Auxiliary Activities	—	—	(25,147)	25,147	—	—	—
Other Designated Purposes	—	—	8,390	1,621	(10,307)	296	—
Plant	—	(5)	—	—	(5)	—	—
Endowment	—	7,676	4,741	—	771	2,164	—
Total Transfers (see Note 1)	89	7,671	(5,658)	26,768	(15,899)	2,460	—
Total Funds Applied	227,756	266,659	8,765	192,333	12,828	23,644	29,089
FUND BALANCES—End of Year							
(see Notes 3 & 4)	\$ (1,907)	\$ 74,056	\$ 13,769	\$ 0	\$ 35,312	\$ 24,975	\$ 0

Note 1: For Federal funds represents unobligated funds returned to Treasury.

Note 2: Includes Collection Acquisition, Scholarly Studies, Educational Outreach, and Special Exhibitions Programs.

Note 3: Funds applied to Museum Support Center includes an obligation of \$3,023 thousand that will be covered by future year appropriations.

Note 4: The fund balance for federal funds represents \$1,116 thousand in multiple-year funding for instrumentation, and the MSC obligation of \$(3,023) thousand to be covered by future year appropriations.

Table 3. Government Grants and Contracts—Expenditures
(in \$1,000s) Fiscal Years 1989 and 1990

Government Agencies	FY 1989	FY 1990
Department of Defense	\$ 966	\$ 1,292
Department of Energy	465	364
Department of Health and Human Services	461	645
Department of Interior	1,130	1,426
National Aeronautics and Space Administration (see Note 1)	15,992	23,660
National Science Foundation (see Note 2)	834	790
Other	1,129	911
Total	<u>\$20,977</u>	<u>\$29,088</u>

Note 1: Includes \$712 thousand (FY 1989) and \$760 thousand (FY 1990) in subcontracts from other organizations receiving prime contract funding from NASA.

Note 2: Includes \$187 thousand (FY 1989) in NSF subcontracts from the Chesapeake Research Consortium.

Table 4. Auxiliary Activities, Fiscal Years 1989 and 1990 (in \$1,000s)

	Sales and Membership Revenue	Gifts	Less Cost of Sales	Gross Revenue	Expenses	Net Revenue (Loss)
FY 1989	<u>\$181,720</u>	<u>\$5,391</u>	<u>\$ 99,965</u>	<u>\$87,146</u>	<u>\$61,946</u>	<u>\$25,200</u>
FY 1990:						
Associates Programs	\$107,051	\$7,284	\$ 71,379	\$42,956	\$26,044	\$16,912
Business Management: (see Note 1)						
—Museum Shops/Mail Order	52,803	—	22,918	29,885	23,081	6,804
—Concessions	3,343	—	—	3,343	2,792	551
—Other	960	—	—	960	937	23
Smithsonian Press	20,792	—	5,773	15,019	12,630	2,389
Media Activities	100	—	—	100	11	89
Total FY 1990	<u>\$185,049</u>	<u>\$7,284</u>	<u>\$100,070</u>	<u>\$92,263</u>	<u>\$65,495</u>	<u>\$26,768</u>

Note 1: Before revenue-sharing transfers to participating Smithsonian bureaus of \$1,460 thousand (FY 1989) and \$1,621 thousand (FY 1990).

Table 5. Endowment and Similar Funds, September 30, 1990 (in \$1,000s)

	Book Value	Market Value
ASSETS:		
<i>Pooled Consolidated Endowment Funds:</i>		
Cash and Equivalents	\$ 3,715	\$ 3,715
Mutual Funds	43,839	41,267
Interfund Receivable	2,568	2,568
U.S. Government and Government Obligations	52,678	52,537
Bonds	24,840	24,442
Convertible Bonds	1,695	1,663
Stocks	122,802	128,176
Receivable for Securities Sold	1,721	1,721
Total Pooled Fund	<u>253,858</u>	<u>256,089</u>
<i>Nonpooled Endowment Funds:</i>		
Loan to U.S. Treasury in Perpetuity	1,137	1,159
Receivables	28	28
Investments in Charitable Trusts	595	701
Total Nonpooled Funds	<u>1,760</u>	<u>1,888</u>
Total Assets	<u>\$255,618</u>	<u>\$257,977</u>
LIABILITIES AND FUND BALANCES:		
LIABILITIES:		
Payables for Securities Purchased	\$ 2,760	\$ 2,760
Deferred Revenue—Charitable Trusts	595	701
Total Liabilities	<u>3,355</u>	<u>3,461</u>
FUND BALANCE:		
Unrestricted Purpose: True Endowment	6,940	7,668
Quasi Endowment	111,590	109,455
Total Unrestricted Purpose	<u>118,530</u>	<u>117,123</u>
Restricted Purpose: True Endowment	89,222	92,558
Quasi Endowment	44,511	44,835
Total Restricted Purpose	<u>133,733</u>	<u>137,393</u>
Total Fund Balances	<u>252,263</u>	<u>254,516</u>
Total Liabilities and Fund Balances	<u>\$255,618</u>	<u>\$257,977</u>

Table 5A. Market Values of Endowment and Similar Funds (in \$1,000s)

Fund	9/30/86	9/30/87	9/30/88	9/30/89	9/30/90
Unrestricted	\$ 83,209	\$108,925	\$101,432	\$127,394	\$117,123
Freer	39,570	50,380	44,228	53,731	47,963
Other Restricted	58,382	74,816	75,169	98,540	89,430
Total	<u>\$181,161</u>	<u>\$234,121</u>	<u>\$220,829</u>	<u>\$279,665</u>	<u>\$254,516</u>

Table 6. Changes in Pooled Consolidated Endowment-Fund Balances at Market (in \$1,000s)

	Unrestricted	Restricted		Total
		Freer	Other	
Market Value—10/1/89	\$126,120	\$53,731	\$96,762	\$276,613
<i>Changes:</i>				
Gifts	0	0	1,774	1,774
Transfers of Excess Yield (Net of Below)				
Interest and Dividends (see Note 1)	5,648	2,397	4,401	12,446
Income Paid Out	(3,715)	(1,557)	(2,855)	(8,127)
Transfers of Other Income	3,732	0	1,427	5,159
Market Value Depreciation	(15,710)	(6,608)	(12,218)	(34,536)
Market Value—9/30/90 (see Note 2)	<u>\$116,075</u>	<u>\$47,963</u>	<u>\$89,291</u>	<u>\$253,329</u>

Note 1: Income earned, less managers' fees of \$1,100 thousand.

Note 2: Nonpooled Endowment Funds have a market value of \$1,187 thousand for a total endowment market value of \$254,516 thousand.

Table 7. Endowment Funds, September 30, 1990

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
UNRESTRICTED PURPOSE—TRUE:				
Avery Fund (see Note 1)	\$ 234,139	\$ 261,719	\$ 9,649	\$ 0
Higbee, Harry, Memorial	84,178	90,784	2,947	0
Hodgkins Fund (see Note 1)	347,887	356,287	21,127	0
Morgan, Gilbert B. and Betty J. Memorial Fund	37,704	35,852	1,164	0
Morrow, Dwight W.	419,409	473,678	15,376	0
Mussinan, Alfred	128,250	138,524	4,496	0
Olmsted, Helen A.	4,350	4,835	157	0
Poore, Lucy T. and George W. (see Note 1)	928,937	1,048,003	36,217	0
Porter, Henry Kirke, Memorial	1,550,066	1,749,119	56,777	0
Sanford, George H. (see Note 1)	6,395	7,009	318	0
Smithson, James (see Note 1)	777,378	776,454	69,828	0
Walcott, Charles D. and Mary Vaux, Research (Designated)	2,421,778	2,726,049	88,489	94,734
Subtotal	6,940,471	7,668,313	306,545	94,734
UNRESTRICTED PURPOSE—QUASI:				
Ettl, Charles H. Fund	1,088,997	1,046,285	33,963	0
Ferguson, Frances B. Endowment	508,473	475,248	7,290	0
Forrest, Robert Lee	5,534,752	5,271,128	171,103	0
General Endowment (see Note 1)	88,661,142	87,133,591	2,799,819	0
Goddard, Robert H.	43,812	41,744	1,355	0
Habel, Dr. S. (see Note 1)	718	717	65	0
Hart, Gustavus E.	2,963	3,124	101	0
Henry, Caroline	7,324	7,705	250	0
Henry, Joseph and Harriet A.	293,993	308,159	10,003	0
Heys, Maude C.	533,561	512,909	16,649	0
Hinton, Carrie Susan	147,515	150,043	4,870	0
Koteen, Dorothy B.	198,962	178,980	5,736	0
Lambert, Paula C.	267,423	275,272	8,935	0
Medinus, Grace L.	5,292	5,105	166	0
O'Dea, Laura I.	178,118	175,268	5,689	0
Phillips, Roy R., Estate	746,753	706,165	22,908	0
Rhees, William Jones (see Note 1)	3,694	3,834	173	0
Safford, Clara Louise	245,580	239,575	7,777	0
Smithsonian Bequest Fund (see Note 1)	1,167,191	853,302	24,693	0
Sultner, Donald H. Endowment	423,252	642,814	25,276	0
Taggart, Ganson	2,608	2,919	95	0
Abbott, William L. (Designated)	689,410	724,340	23,512	57,421
Barstow, Frederic D. (Designated)	5,768	6,054	197	5,676
Hirshhorn Museum Acquisition Fund (Designated)	3,847,921	3,734,900	121,237	0
Lindbergh Chair of Aerospace History (Designated)	2,558,459	2,508,708	81,434	138,519
Lindbergh, Charles A. (Designated)	41,885	40,390	1,311	7,453
Lyon, Marcus Ward, Jr. (Designated)	22,100	21,584	701	7,768
Smithsonian Agency Account (Designated)	35,592	33,061	1,059	0
Smithsonian Press Scholarly Books Fund (Designated)	1,676,459	1,758,005	57,066	115,746

Table 7. Endowment Funds, September 30, 1990 (*continued*)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Smithsonian Tropical Research Institute				
Endowment Fund (Designated)	1,464,107	1,535,324	49,837	39,750
Webb, James E., Fellowship (Designated)	1,185,698	1,058,223	34,350	115,026
Subtotal	111,589,522	109,454,476	3,517,620	487,359
Total Unrestricted Purpose	\$118,529,993	\$117,122,789	\$3,824,165	\$ 582,093
RESTRICTED PURPOSE—TRUE:				
Aitken, Annie Laurie, Endowment Fund	\$ 279,072	\$ 294,037	\$ 9,545	\$ 27,998
Arthur, James	208,930	237,250	7,701	9,765
Baird, Spencer Fullerton	188,260	212,077	6,884	16,160
Barney, Alice Pike, Memorial	149,756	170,015	5,519	57,222
Batchelor, Emma E.	175,962	175,862	5,709	135,633
Beauregard, Catherine, Memorial	226,277	237,581	7,712	97,972
Bergen, Charlotte V.	18,636	17,559	570	3,916
Brown, Roland W.	166,826	176,272	5,722	11,227
Burch, George, Fellowship in Theoretic Medicine and Affiliated Theoretic Sciences Fund	1,734,256	1,595,587	70,638	59,901
Canfield, Frederick A.	220,660	261,396	8,485	176
Casey, Thomas Lincoln	72,503	76,168	2,472	8,282
Chamberlain, Frances Lea	147,040	166,933	5,419	34,872
Cooper Fund for Paleobiology	195,833	185,080	5,911	172
Division of Mammals Curators Fund	10,508	10,757	349	6,775
Drake Foundation	961,824	971,779	31,416	200,182
Drouet, Francis and Louderback, Harold B. Fund	299,509	283,499	9,202	62,904
Dykes, Charles, Bequest	279,086	288,648	9,370	57,302
Eaton, Harriet Phillips	64,172	58,238	1,564	1,564
Eickemeyer, Florence Brevoort	56,741	64,410	2,091	10,183
Eppley Memorial	30,105	27,322	734	734
Forbes, Edward Waldo	878,424	820,593	26,637	105,117
Freer, Charles L.	45,721,490	47,962,951	1,556,899	2,668,407
Global Environmental Endowment Fund	3,006	2,717	66	66
Grimm, Sergei N.	157,579	150,271	4,878	48,432
Groom, Barrick W.	160,721	151,268	4,910	20,988
Guggenheim, Daniel and Florence	624,351	613,693	19,921	94,911
Hamilton, James (see Note 1)	5,800	6,151	406	3,829
Henderson, Edward P., Meteorite Fund	123,657	106,028	3,442	4,714
Hewitt, Eleanor G., Repair Fund	38,147	38,584	1,252	2,182
Hewitt, Sarah Cooper	225,409	227,745	7,393	11,240
Hillyer, Virgil	38,020	39,943	1,297	17,017
Hitchcock, Albert S.	8,330	9,504	308	1,108
Hodgkins Fund (see Note 1)	143,480	143,321	12,895	23,251
Hrdlicka, Ales and Marie	278,084	295,367	9,588	17,774
Hughes, Bruce	100,025	113,600	3,687	18,214
Huntington Publication Fund	250,613	227,439	6,107	6,122
Johnson, Seward, Trust Fund for Oceanography	18,955,725	19,948,501	647,537	163,771
Kellogg, Remington and Marguerite, Memorial	297,302	290,605	8,638	15,805
Kramar, Nada	15,056	15,528	504	7,382

Table 7. Endowment Funds, September 30, 1990 (continued)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Maxwell, Mary E.	102,490	116,393	3,778	57,443
Mellon Publications Endowment Fund	384,113	350,099	7,602	7,812
Milliken, H. Oothout, Memorial	1,123	1,134	37	221
Mineral Endowment	514,312	523,827	17,004	524
Mitchell, William A.	70,026	71,508	2,321	2,993
Museum of the American Indian—Heye Foundation	917,287	832,465	22,352	22,409
Nelms, Henning Endowment Fund	220,336	189,774	6,148	15,304
Nelson, Edward William	118,667	131,806	4,278	3,671
Petrocelli, Joseph, Memorial	38,831	44,149	1,433	16,505
Reid, Addison T. (see Note 1)	118,622	123,784	4,925	14,232
Ripley, S. Dillon and Mary Livingston	178,585	174,869	5,551	24
Roebeling Fund	628,266	712,007	23,112	977
Rollins, Miriam and William	1,298,876	1,378,746	44,390	36,791
Schmitt, John J.	18,750	17,016	457	457
Sims, George W.	143,779	135,772	4,407	13,454
Sprague Fund	8,189,551	8,242,865	265,389	236,128
Springer, Frank	93,879	106,247	3,449	33,831
Stern, Harold P., Memorial	1,013,465	1,014,595	32,931	263,531
Stevenson, John A., Mycological Library	27,722	29,028	942	4,704
Stuart, Mary Horner	403,631	368,809	11,972	22
Walcott, Charles D. and Mary Vaux, Research	849,943	889,480	28,570	26,618
Walcott Research Fund, Botanical Publications	305,043	359,367	11,665	23,689
Williston, Samuel Wendell Diptera Research	28,746	27,990	924	7,874
Williams, Blair & Elsie	39,480	35,829	962	962
Zerbee, Frances Brinckle	4,933	5,587	181	7,821
Subtotal	89,221,631	92,557,425	3,018,158	4,831,267

RESTRICTED PURPOSE—QUASI:

Armstrong, Edwin James	20,632	20,456	653	0
Au Panier Fleuri	103,011	98,312	3,191	2,549
Bacon, Virginia Purdy	489,414	493,433	16,017	79,679
Becker, George F.	844,755	854,040	27,722	20,144
Denghausen, Luisita L. and Franz H. Fund	4,177,172	4,157,011	134,925	240,748
Desautels, Paul E.	39,873	44,992	1,782	19,138
Gaver, Gordon	9,388	9,338	303	2,029
Hachenberg, George P. and Caroline	24,227	25,960	843	7,545
Hammond, John, Performance Series Fund	267,531	230,280	7,309	8,249
Hanson, Martin Gustav and Caroline R.	51,403	53,992	1,753	16,680
Hirshhorn Collections Endowment Fund	5,178,210	4,756,417	154,395	390,619
Hirshhorn, Joseph H., Bequest Fund	2,113,184	2,053,242	116,792	555,689
The Hohenia Trust Fund	4,972,236	5,024,883	163,110	186,720
Hunterdon Endowment	17,054,411	17,741,223	575,888	277,497
ICBP Endowment	1,086,532	1,050,298	34,039	45,687
ICBP Conservation Endowment	233,080	223,298	7,188	21,408
Johnson, E. R. Fenimore	41,035	39,976	1,298	7,587
Loeb, Morris	508,138	535,482	17,382	41,351

Table 7. Endowment Funds, September 30, 1990 (continued)

	Principal		Income	
	Book Value	Market Value	Net Income	Unexpended Balance
Long, Annette E. and Edith C.	2,889	3,307	107	854
Myer, Catherine Walden	116,834	122,725	3,984	35,835
Noyes, Frank B.	5,794	6,186	201	5,007
Noyes, Pauline Riggs	48,522	46,326	1,504	5,414
Pell, Cornelia Livingston	43,056	45,306	1,471	9,459
Ramsey, Adm. and Mrs. Dewitt Clinton (see Note 1)	1,026,211	1,081,506	34,641	34,989
Rathbun, Richard, Memorial	61,716	64,916	2,107	25,364
Roebbing Solar Research	136,311	139,571	4,531	16,909
Ruef, Bertha M.	159,962	155,788	5,057	4,720
Schultz, Leonard P.	97,016	95,348	3,094	31,153
Seidell, Atherton	3,345,559	3,374,159	109,527	560,971
Smithsonian Agency Account	1,449,930	1,443,834	47,628	254
Strong, Julia D.	58,000	61,000	1,980	12,249
Witherspoon, Thomas A., Memorial	745,452	782,709	25,407	169,002
Subtotal	44,511,484	44,835,314	1,505,829	2,835,499
Total Restricted Purpose	133,733,115	137,392,739	4,523,987	7,666,766
TOTAL ENDOWMENT FUNDS (see Note 2)	\$252,263,108	\$254,515,528	\$8,348,152	\$8,248,859

Note 1: Invested all or in part in U.S. Treasury or other nonpooled investments.

Note 2: Income on Investments; does not include \$460,515.67 of interest income which is included in unexpended balances.

**Table 8. Construction and Plant Funds,
Fiscal Years 1989 and 1990 (in \$1,000s)**

	FY 1989	FY 1990
FUNDS PROVIDED		
<i>Federal Appropriations:</i>		
National Zoological Park	\$ 5,305	\$ 6,500
Restoration and Renovation of Buildings	20,735	26,769
Construction Planning and Minor Construction	2,770	4,770
Tropical Research Institute—Research Facilities	2,700	1,930
Astrophysical Observatory—Whipple Base Camp	3,185	0
National Museum of American Indian	0	1,620
Total Federal Appropriations	<u>34,695</u>	<u>41,589</u>
<i>Nonappropriated Trust Funds:</i>		
Income-Gift and Other		
Environmental Research Center—Land Acquisitions	172	37
Tropical Research Institute—Research Facilities	161	1,177
Cooper-Hewitt Museum	231	52
Quadrangle and Related	2,719	462
Visitor Information and Reception Center	1,164	29
Other (see Note 1)	399	(82)
Total Income	<u>4,846</u>	<u>1,675</u>
<i>Transfers from Other Funds:</i>		
Visitors Information and Reception Center (see Note 1)	0	(6)
Total Transfers	<u>0</u>	<u>(6)</u>
Total Funds Provided	<u>\$39,541</u>	<u>\$43,258</u>

Note 1: Funds reclassified to current operating funds.



Dr. Robert Dudley, STRI postdoctoral fellow, uses a hand-held anemometer to measure the flight speed of a butterfly. Dr. Dudley and Robert Srigley, NSF predoctoral fellow from the University of Texas, are studying the correlation between the palatability of butterflies and their flight velocity, morphology, and body temperature. (Photo by Carl Hansen)

Coopers & Lybrand
Certified Public Accountants

Report of Independent Accountants

To the Board of Regents
Smithsonian Institution

We have audited the accompanying statement of financial condition of the Smithsonian Institution as of September 30, 1990, and the related statement of financial activity for the year then ended. These financial statements are the responsibility of the Institution's management. Our responsibility is to express an opinion on these financial statements based on our audit. We previously audited and reported upon the financial statements of the Smithsonian Institution for the year ended September 30, 1989, totals of which are included in the accompanying financial statements for comparative purposes only.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Smithsonian Institution as of September 30, 1990, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles.

Coopers & Lybrand

Washington, D.C.
December 28, 1990

Smithsonian Institution Statement of Financial Condition, September 30, 1990
(with comparative totals for September 30, 1989) (thousands of dollars)

	Trust funds	Federal funds	Totals, all funds	Totals, 1989
ASSETS:				
Fund balances with U.S. Treasury and cash on hand	\$ 1,143	\$111,916	\$113,059	\$100,891
Investments (Note 3)	323,863	—	323,863	303,899
Receivables (Note 5)	48,335	9,746	58,081	54,874
Advance payments (Note 6)	—	18,606	18,606	21,743
Inventories	16,491	1,805	18,296	17,037
Prepaid, deferred expense and other	18,151	—	18,151	16,324
Property and equipment (Note 7)	75,271	261,847	337,118	323,606
Total assets	<u>\$483,254</u>	<u>\$403,920</u>	<u>\$887,174</u>	<u>\$838,374</u>
LIABILITIES:				
Accounts payable:				
Accounts payable and accrued expenses	24,856	22,838	47,694	38,194
Interfund payable	9,929	—	9,929	9,764
Payable for investment securities purchased	2,760	—	2,760	10,070
Deposits held in custody for other organizations (Note 2)	3,532	—	3,532	3,148
Accrued annual leave	—	9,584	9,584	11,531
Deferred revenue	43,286	—	43,286	37,653
Long-term debt (Note 9)	11,101	—	11,101	11,313
Total liabilities	<u>95,464</u>	<u>32,422</u>	<u>127,886</u>	<u>121,673</u>
Undelivered orders	—	71,688	71,688	67,489
Commitments and contingencies (Note 8)				
FUND BALANCES (deficit):				
Trust Current:				
Unrestricted general purpose	13,769	—	13,769	13,300
Special purpose	35,313	—	35,313	33,808
Restricted	24,975	—	24,975	20,948
Trust Endowment and similar funds (Note 4)	252,263	—	252,263	237,788
Trust Plant funds (Note 7)	61,470	—	61,470	62,025
Federal Operating funds (Note 10)	—	(531)	(531)	1,312
Federal Construction funds	—	36,689	36,689	32,189
Federal Capital funds	—	263,652	263,652	247,842
Total fund balances	<u>387,790</u>	<u>299,810</u>	<u>687,600</u>	<u>649,212</u>
Total liabilities, undelivered orders, and fund balances	<u>\$483,254</u>	<u>\$403,920</u>	<u>\$887,174</u>	<u>\$838,374</u>

The accompanying notes are an integral part of these financial statements.

Smithsonian Institution Statement of Financial Activity for the year ended September 30, 1990
(with comparative totals for the year ended September 30, 1989) (thousands of dollars)

	Trust funds				
	Totals, trust funds	Current funds	Endowment and similar funds	Plant funds	Totals, federal funds
REVENUE AND OTHER ADDITIONS:					
Appropriations	\$ —	\$ —	\$ —	\$ —	\$266,690
Government grants and contracts	29,089	29,089	—	—	—
Investment income	18,447	17,870	—	577	—
Net gain on sale of securities	5,025	—	5,025	—	—
Gifts, bequests, and foundation grants	24,485	21,616	1,774	1,095	—
Additions to plant	2,719	—	—	2,719	42,287
Rentals, fees, commissions, and other	10,027	10,024	—	3	2,097
Auxiliary activities	194,062	194,062	—	—	—
Total revenue and other additions	283,854	272,661	6,799	4,394	311,074
EXPENDITURES AND OTHER DEDUCTIONS:					
Research, educational, and collection acquisitions (Note 11)	71,921	71,921	—	—	143,747
Administration	20,878	20,878	—	—	19,699
Facilities services	1,388	1,388	—	—	65,884
Acquisition of plant	2,429	1	—	2,428	36,711
Property use and depreciation (Note 7)	2,515	—	—	2,515	26,477
Auxiliary activities	164,802	164,802	—	—	—
Total expenditures and other deductions	263,933	258,990	—	4,943	292,518
Excess of revenue and other additions over (under) expenditures and other deductions	19,921	13,671	6,799	(549)	18,556
TRANSFERS AMONG FUNDS— ADDITIONS (DEDUCTIONS) (Note 12)					
Net increase for the year	19,921	6,001	14,475	(555)	18,556
Return to U.S. Treasury	—	—	—	—	(89)
Fund balances at beginning of year	367,869	68,056	237,788	62,025	281,343
FUND BALANCES AT END OF YEAR	\$387,790	\$ 74,057	\$252,263	\$61,470	\$299,810

The accompanying notes are an integral part of these financial statements.

Federal funds				
Operating funds	Construction funds	Capital funds	Totals, all funds	Totals, 1989
\$225,479	\$41,211	\$ —	\$266,690	\$245,935
—	—	—	29,089	20,977
—	—	—	18,447	17,747
—	—	—	5,025	9,428
—	—	—	24,485	28,353
—	—	42,287	45,006	55,283
2,097	—	—	12,124	10,134
—	—	—	194,062	190,395
<u>227,576</u>	<u>41,211</u>	<u>42,287</u>	<u>594,928</u>	<u>578,252</u>
143,747	—	—	215,668	191,656
19,699	—	—	40,577	35,878
65,884	—	—	67,272	63,474
—	36,711	—	39,140	33,204
—	—	26,477	28,992	26,943
—	—	—	164,802	161,363
<u>229,330</u>	<u>36,711</u>	<u>26,477</u>	<u>556,451</u>	<u>512,518</u>
(1,754)	4,500	15,810	38,477	65,734
—	—	—	—	—
(1,754)	4,500	15,810	38,477	65,734
(89)	—	—	(89)	(89)
1,312	32,189	247,842	649,212	583,567
<u>\$ (531)</u>	<u>\$36,689</u>	<u>\$263,652</u>	<u>\$687,600</u>	<u>\$649,212</u>

Smithsonian Institution Notes to Financial Statements

I. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, or the Woodrow Wilson International Center for Scholars, which were established by Congress within the Smithsonian Institution (the Institution) but are administered under separate boards of trustees.

The financial statements of the Institution with respect to Federal Appropriations have been prepared on the obligation basis of accounting, which is in accordance with accounting principles prescribed by the Comptroller General of the United States as set forth in the *Policy and Procedures Manual for Guidance of Federal Agencies*. The obligation basis of accounting differs in some respects from generally accepted accounting principles. Under this method of accounting, approximately \$44,926,000 of commitments of the operating fund, such as purchase orders and contracts, have been recognized as expenditures, and the related obligations have been reported on the Statement of Financial Condition at September 30, 1990, even though the goods and services have not been received. Approximately \$13,242,000 of these commitments are for grants under the foreign currency program. Approximately \$14,416,000 of these commitments are for internal storage facilities and equipment at the Museum Support Center. In addition, construction fund commitments for other projects amounted to approximately \$26,762,000 at September 30, 1990.

The trust funds reflect the receipt and expenditure of funds obtained from private sources, government grants and contracts, investment income, and certain business activities related to the operations of the Institution.

Fund Accounting

To ensure observance of the limitations and restrictions placed on the use of resources available to the Institution, accounts are maintained in accordance with the

principles of fund accounting. This procedure classifies resources for control, accounting, and reporting purposes into distinct funds established according to their appropriation, nature, and purposes. Funds that have similar characteristics have been combined into fund groups in the accompanying financial statements. Accordingly, all financial transactions have been recorded and reported by fund group.

The assets, liabilities, and fund balances of the Institution are self-balancing as follows:

Federal operating funds represent the portion of appropriated funds available for support of Institution operations.

Federal constructions funds represent that portion of appropriated funds available for building and facility construction, restoration, renovation, and repair. Separate subfund groups are maintained for each appropriation—Construction and Improvements, National Zoological Park, Restoration and Renovation of Buildings, Museum Support Center, and the Center for African, Near Eastern, and Asian Cultures (Quadrangle).

Federal capital funds represent the value of those assets of the Institution acquired with federal funds and nonexpendable property transfers from government agencies.

Trust current funds, which include unrestricted and restricted resources, represent the portion of nonappropriated funds available for the support of Institution operations. Amounts restricted by the donor for specific purposes are segregated from other current funds.

Trust endowment and similar funds include funds that are subject to restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be used. Also classified as endowment and similar funds are gifts that allow the expenditure of principal but only under certain specified conditions. Quasi-endowment funds are funds established by the governing board for the same purposes as endowment funds; however, any portion of such funds may be expended with board approval. Restricted quasi-endowment funds represent gifts for restricted purposes where there is no stipulation that the principal be maintained in perpetuity or for a period of time, but the governing board has elected to invest the principal and expend

only the income for the purpose stipulated by the donor.

Trust plant funds represent resources restricted for future plant acquisitions and funds expended for plant.

Investments

All investment income, except that of endowment and similar funds, and gains and losses arising from the sale of investments and property, are accounted for in the fund in which the related assets are recorded. Income of endowment and similar funds is accounted for in the fund to which it is restricted or, if unrestricted, as revenue in unrestricted current funds. Gains and losses on the sale of investments are recognized on the trade date basis using the average cost method.

Inventory

Inventories are carried at the lower of cost or market. Cost is determined using the first-in, first-out (FIFO) method or retail cost method (for those inventories held for resale). Merchandise inventory approximated \$16,491,000 and materials and supplied inventory approximated \$1,805,000 at September 30, 1990.

Deferred Revenue and Expense

Revenue from subscriptions to *Smithsonian* magazine and *Air & Space/Smithsonian* magazine is recorded as income over the period of the related subscription, which is generally one year. Costs related to obtaining subscriptions to *Smithsonian* magazine and *Air & Space/Smithsonian* magazine are charged against income over the period of the subscription.

The Institution recognizes revenue and charges expenses of other auxiliary activities during the period in which the activity is conducted.

Works of Art, Living or Other Specimens

The Institution acquires its collections, which include works of art, library books, photographic archives, ob-

jects, and specimens, through purchase by federal or private funds or by donation. In accordance with policies generally followed by museums, no value is assigned to the collections on the statement of financial condition. Purchases for the collections are expensed currently.

Property and Equipment—Federal Funds

Property and equipment purchased with federal funds are recorded in the capital funds at cost and depreciated on a straight-line basis over their useful lives as follows:

Buildings	30 years
Major renovations	15 years
Nonexpendable equipment	10 years

Certain lands occupied by the Institution's buildings were appropriated and reserved by Congress for the Institution and are not reflected in the accompanying financial statements. Property and nonexpendable equipment acquired through transfer from government agencies are capitalized at the transfer price or at estimated amounts, taking into consideration usefulness, condition, and market value.

Property and Equipment—Trust Funds

Property and equipment purchased with trust funds for use by nonincome-producing activities are recorded at cost, or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay and the Carnegie Mansion, which have been recorded at nominal values. Property and equipment are treated as a deduction of the current fund and as a capitalized cost of the plant fund.

Property and equipment for use by nonincome-producing activities are depreciated on the straight-line basis over their useful lives as follows:

Buildings	30 years
Major renovations	15 years
Equipment	10 years

Depreciation is recorded in the plant fund as a deduction to the investment in plant.

Capital improvements and equipment purchased with trust funds and utilized in income-producing activities are capitalized at cost and are depreciated on a straight-line basis over their estimated useful lives of 3 to 10 years.

Government Grants and Contracts

The Institution has a number of grants and contracts with the U.S. Government, which primarily provide for cost reimbursement to the Institution. Grant and contract revenue is recognized within trust funds as expenditures are incurred.

Pledges and Donations

The Institution records significant pledges based upon letters signed by donors. Pledges are recorded at net realizable value as a receivable and as deferred revenue on the statement of financial condition. Revenue from pledges is recognized in the year the pledged funds are collected.

Donations are recognized as revenue in the year the cash is received.

Contributed Services

A substantial number of unpaid volunteers have made significant contributions of their time in the furtherance of the Institution's programs. The value of this contributed time is not reflected in these statements in accordance with generally accepted accounting principles.

Annual Leave

The Institution's civil service employees earn annual leave in accordance with federal law and regulations. However, only the cost of leave taken as salaries is funded and recorded as an expense. The cost of unused annual leave at year-end is reflected in the accompanying financial statements as an asset and an accrued liability in the federal funds.

Annual leave is expensed for trust employees in the trust fund as earned.

2. Related Activities

The Institution provides certain fiscal and administrative services to several separately incorporated organizations in which certain officials of the Institution serve on the governing boards. The amounts paid to the Institution by these organizations for the aforementioned Services, together with rent for Institution facilities occupied, totaled \$293,000 (\$214,000 for the trust funds and \$79,000 for the federal funds) for the year ended September 30, 1990. Deposits held in custody for these organizations were \$8,138,000 as of September 30, 1990.

The following summarizes the unaudited expenditures of these organizations for the fiscal year ended September 30, 1990, as reflected in their individual financial statements, which are not included in the accompanying financial statements of the Institution:

Reading Is Fundamental, Inc.	\$8,396,000
Woodrow Wilson International Center for Scholars:	
Federal appropriations	\$4,638,000

3. Investments

Investments are recorded at cost on a trade date basis, if purchased, or estimated fair market value at date of acquisition, if acquired by gift. At September 30, 1990, investments were composed of the following:

	Carrying value (\$000s)	Market value (\$000s)
Current funds:		
Short-term investments	\$ 72,437	\$ 72,530
Endowment and similar funds:		
Short-term cash equivalents	47,555	44,982
Deposit with U.S. Treasury	1,137	1,159
U.S. Government and quasi- government obligations	52,678	52,537
Corporate bonds and other obligations	26,535	26,105
Common and preferred stock	122,802	128,177
Charitable trusts	595	701
	<u>251,302</u>	<u>253,661</u>
Plant funds:		
Common stock	125	183
Total investments	<u>\$323,864</u>	<u>\$324,374</u>

The deposit with the U.S. Treasury is invested in U.S. Government securities at a variable yield based on market rates.

Substantially all the investments of the endowment and similar funds are pooled on a market value basis (consolidated fund) with each individual fund subscribing to or disposing of units on the basis of the per unit market value at the beginning of the month within which the transaction takes place. As of September 30, 1990, 315,961 units were owned by endowment funds, and 490,262 units were owned by quasi-endowment funds.

The following tabulation summarizes changes in relationships between cost and market values of the pooled investments:

	(\$000s)		
	Market	Cost	Change
End of year	\$253,329	\$251,098	\$ 2,231
Beginning of year	276,613	234,799	41,814
Decrease in unrealized net gain for the year			(39,583)
Realized net gain for the year			5,045
Net change			<u>\$(34,538)</u>

4. Endowment and Similar Funds

The Institution utilizes the "total return" approach to investment management of endowment funds and quasi-endowment funds. Under this approach, an amount equal to the difference between actual interest and dividends earned during the year and the amount computed under the total return formula is transferred to or from the current funds.

In applying this approach, it is the Institution's policy to provide, as being available for current expenditures, an amount taking into consideration such factors as, but not limited to: (1) 4½% of the five-year average of the market value of each fund (adjusted for gifts and transfers during this period), (2) current dividend and interest yield, (3) support needs for bureaus and scientists, and (4) inflationary factors as measured by the Consumer Price Index. However, where the market value of the assets of any endowment fund is less than 110% of the historic dollar value (value of gifts at date of donation), the amount provided is limited to only interest and dividends received.

The total return factor for 1990 was \$10.20 per unit, equivalent to 4% of the five-year average of the Market Value of each participating fund. Actual dividends and interest earned exceeded the total return for the year, and this excess was transferred from the current funds to the endowment funds (see Note 12).

5. Receivables

Receivables at September 30, 1990, include the following:

	(\$000s)		
	Trust funds	Federal funds	Totals, all funds
Auxiliary activities and other accounts receivable, net of \$6,365,000 allowance for doubtful accounts	\$20,662	\$ —	\$20,662
Receivables for investment securities sold	1,721	—	1,721
Pledges receivable	7,827	—	7,827
Endowment notes receivable	28	—	28
Reimbursements due from grants and contracts	4,171	—	4,171
Interest and dividends receivable	3,997	—	3,997
Interfund receivables	9,929	—	9,929
Value of accrued annual leave	—	9,584	9,584
Other	—	162	162
	<u>\$48,335</u>	<u>\$9,746</u>	<u>\$58,081</u>

6. Advance Payments

Advance payments represent prepayments made to government agencies, educational institutions, firms, and individuals for services to be rendered, or property or materials to be furnished.

As of September 30, 1990, the Institution had advances outstanding to the General Services Administration of \$14,313,000, principally for construction services including the Museum Support Center and other projects to be completed in future fiscal years. The Institution at that date also had advances outstanding to educational institutions amounting to approximately \$1,902,000, principally under the Special Foreign Currency Program.

7. Property and Equipment

At September 30, 1990, property and equipment comprised the following:

	(\$000s)	(\$000s)
<i>Trust</i>		
<i>Current funds</i>		
Capital improvements	\$ 23,412	
Equipment	9,186	
Leasehold improvements	1,620	
Less: accumulated depreciation and amortization	(13,158)	
	<u>21,060</u>	
<i>Plant funds</i>		
Land and buildings	63,027	
Equipment	6,750	
Less: accumulated depreciation	(15,566)	
	<u>54,211</u>	
Total, trust funds		<u>\$75,271</u>
<i>Federal</i>		
<i>Capital funds</i>		
Property	419,088	
Equipment	44,550	
Less: accumulated depreciation	(201,791)	
Total, federal funds		<u>261,847</u>
Total, all funds		<u>\$337,118</u>

Included in this accumulated depreciation of the federal capital funds is \$20,947,000 of depreciation expense for 1990.

Depreciation and amortization expense in the trust funds for fiscal 1990 for income-producing assets amounted to \$3,061,217 and is included in the current funds. Depreciation of nonincome-producing equipment and buildings for 1990 amounted to \$2,627,985 and is included in the plant fund. The balance of the plant fund at September 30, 1990, included \$7,260,000 of unexpended funds for future plant acquisitions.

8. Commitments and Contingencies

Leases for various Smithsonian warehouse and office spaces provide for escalation of rents to coincide with

increases in property taxes, operating expenses attributable to the leased property, and the Consumer Price Index.

The Institution's operating leases require future minimum lease payments as follows:

Lease payments	(\$000s)
1991	\$ 5,463
1992	5,335
1993	3,800
1994	3,293
1995	2,968
Thereafter	649
	<u>\$21,508</u>

Rental expense for office facilities aggregated approximately \$4,561,000 in 1990.

9. Long-term Debt

Long-term debt as of September 30, 1990 consists of the following:

	(\$000s)
9% note payable to The Riggs National Bank, interest only payable quarterly commencing December 31, 1986; interest and principal payable quarterly commencing September 30, 1991, and ending on June 30, 1998	\$11,000,000
9% note payable for purchase of Folkways Records and Service Corporation, due in four annual installments, commencing December 31, 1987	100,000
	<u>\$11,100,000</u>

The aggregate amount due for all borrowings for the years ending September 30 are as follows: \$386,000 in 1991; \$1,211,000 in 1992; \$1,324,000 in 1993; \$1,447,000 in 1994; \$1,582,000 in 1995; and \$5,150,000 in years thereafter.

The proceeds of the note with The Riggs National Bank were used to fund construction of a restaurant addition to the National Air and Space Museum. Approximately \$990,000 was recorded as interest expense

and was paid by Auxiliary Activities funds for fiscal year 1990.

10. Federal Operating Funds

The federal operating funds include appropriations for salaries and expenses that are expended in the year received. Also included are amounts received with the provision that such amounts can be expended over a period greater than one year.

The federal operating funds for the year ended September 30, 1990, included the following:

	(\$000s)		Fund balance (deficit) at September 30, 1990
	Revenues and other additions		
	Appropriations	Other	
Salaries and expenses	\$225,479	\$ —	\$(1,907)
Special Foreign Currency Program	—	—	77
U.S. India Fund (transfers from Department of State)	—	2,001	1,258
Smithsonian Tropical Research Institute	—	137	39
	<u>\$225,479</u>	<u>\$2,138</u>	<u>\$ 531</u>

On July 11, 1990, a settlement was awarded in the amount of \$3,022,350 arising out of a suit against the United States by a contractor who was defaulted by the General Services Administration for failure to complete a project for the Museum Support Center in a timely fashion. This mandatory obligation falls outside the provisions of the Antideficiency Act. According to accounting principles prescribed by the Comptroller General of the United States, the Institution has recognized this expense, in the year of settlement by the United States, which results in an operating fund deficit. The Institution will request a supplemental appropriation in order to restore the operating fund deficit.

11. Collections Acquisitions

In accordance with policies generally followed by museums, the Institution records the acquisition of collections as an expense in the year of purchase. For fiscal year 1990, \$5,702,315 was expensed to trust funds and \$1,179,118 to federal funds for the acquisition of collections.

12. Transfers among Funds

The following transfers increased (decreased) respective fund balances for the year ended September 30, 1990:

	\$000s		Endowment and similar funds	Plant funds
	Current funds Unrestricted	Restricted		
Total return income reinvested	\$(1,988)	\$(2,630)	\$4,618	\$—
Income reallocated for special purposes	140	(134)	—	(6)
Endowment reallocated to restricted funds	—	526	(526)	—
Designated as quasi-endowment	(3,524)	(60)	3,584	—
Other	162	(162)	—	—
Total transfers among funds	<u>\$(5,210)</u>	<u>\$(2,460)</u>	<u>\$7,676</u>	<u>\$(6)</u>

13. Retirement Plans

The federal employees of the Institution are covered by either the Civil Service Retirement System (CSRS) or the Federal Employee Retirement System (FERS). The features of both of these systems are defined in published government documents. Under both systems, the Institution withholds from the salary of each federal employee the percentage of salary required; the Institution also contributes specified percentages. The cost of the programs for the year ended September 30, 1990, was \$10,612,000.

The Institution has a separate retirement plan for trust employees. Under the plan, both the Institution and the employees contribute stipulated percentages of

salary, which are used to purchase individual annuities, the rights to which are immediately vested with the employees. The Institution's cost of the plan for the year ended September 30, 1990, was \$5,643,000.

It is the policy of the Institution to fund the accrued costs of all plans currently. There are no unfunded prior service costs under the plans.

14. Income Taxes

The Institution is exempt from income taxation under the provisions of Section 501(c)(3) of the Internal Revenue Code. Organizations described in that section are taxable only on their unrelated business income. No provision for income taxes is required for the year ended September 30, 1990, since the Institution had a net loss from unrelated business activity.

It is the opinion of the Institution that it is also exempt from taxation as an instrumentality of the United States as defined in Section 501(c)(1) of the Code. Organizations described in that section are exempt from all income taxation. The Institution has not as yet formally sought such dual status.

15. Museum of the American Indian

On November 28, 1989, the president of the United States approved legislation to establish the National Museum of the American Indian within the Smithsonian Institution. The legislation gave authority to the Board of Regents to enter into an agreement to transfer certain assets, works of art, and the endowment of the Museum of the American Indian, located in New York City, to the Institution. The transfer took place effective June 21, 1990. On that date certain assets including cash, inventory, other assets, trade accounts payable and other liabilities of \$495,000, and the permanent endowment of \$1,327,000 were transferred to the Institution Trust funds. In addition, on that date the Museum of the American Indian transferred and conveyed its entire collection to the Institution. The legislation authorized federal appropriations for the construction of the National Museum of the American Indian, for administration and planning expenses, and for care and custody of the collection.

RESEARCH

Robert Hoffmann, Assistant Secretary for Research

Since its inception, the Smithsonian Institution has nourished a commitment to scholarly research through programs characterized by breadth, depth, and outreach. The Institution is well known for studies that benefit the entire scholarly community, from long-term baseline monitoring of ultraviolet radiation on the Earth to inventories of American painting and sculpture. Research is carried on worldwide by specialized institutes such as the Smithsonian Tropical Research Institute and the Smithsonian Astrophysical Observatory, as well as by museums and central support units such as the National Museum of Natural History, the art museums, and the Smithsonian Institution Archives.

The Institution continues to emphasize global environmental research. Smithsonian researchers are studying the function of natural and disturbed ecosystems and the dynamic role of the Sun and the atmosphere in the observed warming of the Earth's temperature. They are also seeking greater understanding of the structure and composition of natural communities and ecosystems so that the richness and stability of these systems may be maintained or restored in the face of increasing human pressures. An example of such fundamental research is the work being done by the systematic biologists in the Institution, on whose shoulders rests the responsibility for inventorying and describing the species richness of the biosphere.

Smithsonian research also focuses on understanding human social and cultural systems and maintaining their stability in the face of factors leading to social fragmentation and cultural breakdown. The Smithsonian's history and art museums examine the nature of changing cultures throughout the world, ranging from Japanese views of Westerners following the opening of Japan to contemporary West African art and culture, the influence on the Caribbean of the importation of peoples and their cultures during the slave trade, and the role of African American inventors in nineteenth-century America.

Scholarly research is by its very nature an individualistic enterprise, although like-minded scholars may band together to carry out team projects. The Smithsonian strives to maintain an institutional atmosphere that enhances creativity and leads to new insights about the natural and human worlds, thus enabling us to deal more successfully with the challenges we face now and in the future.

The International Center, established in 1983, is a point of convergence for the complex worldwide activities of the Institution. At the center, a global perspective on history, culture, and science is pursued in discussions, lectures, exhibitions, and performances, and the international programs of Smithsonian bureaus and offices are fostered. Its five divisions are the Office of International Relations, the International Gallery, the Office of Quincentenary Programs, the Office of Conference Services, the Office of Environmental Awareness, and the Smithsonian Institution Man and the Biosphere Biological Diversity Program. The International Center also houses the Council of American Overseas Research Centers.

Office of International Relations

The Office of International Relations supports Smithsonian activities abroad and coordinates the Institution's international interests through information gathering, logistical assistance, and diplomatic support. As the Institution's formal liaison branch, the office deals with international organizations, foreign affairs agencies, and institutions or individuals abroad seeking to establish cooperative relationships with the Smithsonian.

In 1990, the Office of International Relations coordinated visits to the Institution by Corazon Aquino, president of the Philippines, and Abdou Diouf, president of the Republic of Senegal, to formalize cooperative research and museum programs. As part of the development of joint research and training activities, the office organized meetings with the deputy director of the National Museums of Kenya; the minister of water, forests, and animal husbandry of Madagascar; representatives of the Central Region of Ghana; and officials of the Chinese Academy of Sciences. The office arranged for Alpha Oumar Konare of Mali, new president of the International Council of Museums, to attend a series of meetings with Smithsonian officials and to address the International Cultural Affairs Network, an organization of individuals involved in cultural exchange, for which the office acts as secretariat.

Among the many meetings that the office coordinated in 1990 were "U.S.-Soviet Exchange on Large Water Projects," a symposium sponsored in conjunc-



After discussions about opportunities for cooperative international research and museum programs, participants leave the S. Dillon Ripley Center. (Left to right: His Excellency Abdou Diouf, president of the Republic of Senegal; George E. Moose, U.S. Ambassador to Senegal; interpreter; and Robert S. Hoffmann, Smithsonian assistant secretary for research.)

tion with the Office of the Assistant Secretary for Research, Friends of the Earth, the Washington-Moscow Exchange, and the Organization of American-Soviet Exchanges; the sixth meeting of the U.S.-Pakistan Subcommittee on Education and Culture; a meeting of the Indo-U.S. Subcommittee on Education and Culture; and a seminar on museum management and outreach for a multicultural group of museum curators and administrators on a study tour of the United States sponsored by the U.S. Information Agency.

As part of its administrative services, the Office of International Relations oversees three funding programs designed to encourage international cooperation in scholarly activities: the Smithsonian Foreign Currency Program, the Smithsonian International Exchange Program, and the Suzanne Liebers Erickson Memorial Fund. The office obtains U.S. passports and foreign visas for travel abroad by staff and grant recipients, and it provides visa documentation for foreign researchers and museum professionals traveling to the Smithsonian, the National Gallery of Art, and a number of collaborating U.S. museums and zoos.

International Gallery

The "Caribbean Festival Arts" exhibition, organized by the St. Louis Art Museum, ended its nine-month run at the Smithsonian's International Gallery on February 15, 1990. The exhibition, which presented the carnival costumes of the Caribbean as an art form, was supported in its Smithsonian presentation by ancillary public programs that took a holistic look at the region and attracted a large, culturally diverse audience.

Among the programs was a series of scholarly dialogues, developed in collaboration with the Woodrow Wilson International Center for Scholars, that focused on the rich culture of the Caribbean, its intellectual life, its politics, and its natural resources. The series, which was edited for broadcast by more than 100 radio stations nationwide, covered such topics as "Caribbean Politics: 500 Years after Columbus" and "The Role of the Artist in an Evolving Nationalist Society." Among the distinguished Caribbean political leaders and scholars who participated were P. J. Patterson, deputy prime minister of Jamaica; Leslie Manigat, former president of Haiti; Rex Nettleford, pro-vice-chancellor, Univer-

sity of the West Indies; Sylvia Wynter, Stanford University; and George Lamming, Caribbean writer.

Office of Quincentenary Programs

The Office of Quincentenary Programs coordinates Smithsonian programs leading to the commemoration of the 500th anniversary of Columbus's landfall in the Americas. In 1990, the office's newsletter *The New World* was distributed to more than 9,000 individuals, organizations, and educational institutions throughout this hemisphere to promote public understanding of the consequences of the 1492 event. Future issues are planned.

In the course of the quincentenary commemoration, the Smithsonian will present more than 100 programs related to the cultural, historical, and scientific implications of the encounter between the original inhabitants of the Americas and Europeans, Africans, Asians, and other peoples. Exhibitions, public programs, symposia, publications, and television and radio programs are planned for audiences in the United States and throughout the world. An example is the five-part bilingual television series "The Buried Mirror: Reflections on the New World by Carlos Fuentes," written and narrated by the internationally acclaimed Mexican writer and scheduled for broadcast in 1992. The series explores Latin America, past and present, focusing on themes, institutions, beliefs, and symbols that have endured or changed during the past 500 years.

In 1990, the Office of Quincentenary Programs and the Mexican Cultural Institute, through the Embassy of Mexico, cosponsored a photographic exhibition, "Pre-Hispanic Foods of Mexico." The exhibition told the story of foods derived from the animal, plant, and mineral kingdoms, described the foods of pre-Columbian Mexico, and explained the survival, change, or disappearance of these foods. The exhibition, displayed in the International Center, featured more than 40 color photographs by Michel Zabé with Spanish-language text by Teresa Castelló of the Universidad Autónoma de México. The Office of Quincentenary Programs produced an English-language guide to the exhibition.

Planning meetings were held this year to develop a proposal for a Smithsonian Institute of the Americas. The proposed new institute—not a museum, but a dy-

namic operating entity—will facilitate interdisciplinary research on issues of high priority for the hemisphere by fostering scholarship, promoting the exchange of knowledge among experts in different disciplines and different countries who are concerned with similar issues, disseminating its findings, providing technical assistance to institutions with common interests, and offering training for the staffs of such institutions. The Office of Quincentenary Programs continues to work closely with the Association of Ibero-American Cultural Attachés and Ambassadors. The association has been especially helpful and enthusiastic in cosponsoring the Symposium of the Americas, to be held in May 1991.

Office of Conference Services

In 1990, the Office of Conference Services managed a record number of conferences, ranging from small seminars to large international congresses. Produced in collaboration with museums and offices throughout the Institution, these gatherings afforded Smithsonian scholars and professional staff rich opportunities for the exchange of information, ideas, and experiences with their colleagues and with public audiences. Many of the conferences and symposia were direct outgrowths of research and exhibition projects of Smithsonian curators. The office's logistical assistance further allowed the Institution to play host to diverse cultural and scientific associations whose activities are related to Smithsonian research interests.

Two November conferences were representative of those initiated by Smithsonian scholars. "Disease and Demography in the Americas: Changing Patterns before and after 1492," grew out of research for the National Museum of Natural History's upcoming "Seeds of Change" exhibition. Produced in collaboration with the museum's Office of Quincentenary Programs, this symposium examined the dynamics of health and disease in human populations of the Old and New Worlds before and after the 1492 encounter. It involved approximately 200 scholars in anthropology, archaeology, demography, history, and health.

Also in November, the office worked with the Glenan-Webb-Seamans Project for Research in Space History, National Air and Space Museum, to produce an applied research conference titled "Preserving the His-



His Excellency Gustavo Petricioli, Ambassador of Mexico, and Secretary Adams attend the opening reception for the exhibition "Pre-Hispanic Foods of Mexico" in the International Gallery.

tory of the Aerospace Industry." This conference provided a forum for archivists and historians to exchange information with industry professionals on establishing and maintaining corporate archives.

Among the organizations that the Smithsonian hosted during the year were the International Council for Archaeozoology, for its sixth international conference; the Textile Society of America, for its second biennial symposium; and the Scientific Instrument Commission of the International Union of the Historical Philosophy of Science, for its 10th scientific instruments symposium.

Smithsonian Institution Man and the Biosphere Biological Diversity Program

The protection of biological diversity is one of the greatest challenges today. Biological diversity is inextricably linked to human welfare because it provides all essential life-support services. Never before have so many different ecosystems, especially in developing countries, been so threatened.

The Smithsonian Institution Man and the Biosphere Biological Diversity Program (SI/MAB) addresses the challenge of protecting the biological and cultural diversity of developing countries. In the field, classrooms, and museums, the program conducts training in conser-

vation biology, natural resource management, wildlife and wildland management, and research methods.

Programs are carried out in developing countries where host-country resource managers have identified environmental problems. Program scientists from SI/MAB design and implement training programs in concert with host-country and international organizations and experts to help ensure that each nation's conservation priorities are addressed. The program has established contacts within the conservation community in most Latin American countries and working partnerships with counterparts in Bolivia, Brazil, Ecuador, Guatemala, Panama, Nicaragua, Mexico, Belize, and Puerto Rico. Since 1987, nearly 140 participants from 15 Latin American countries have been trained, and an additional 120 will be trained by the spring of 1991. Similar initiatives have been put forward in Southeast Asia and in Madagascar and other parts of Africa. In-country training programs will be expanded in the American tropics and will be started in the African and Asian tropics by the end of 1992.

The SI/MAB program has experienced substantial success and cooperation because it responds to the concerns and needs of the countries with which it collaborates and because it has the support of many international organizations. The UNESCO Man and the Biosphere Program, the U.S. Agency for International Development, the World Wildlife Fund, the World Heritage Program, and other international and host-country organizations have cosponsored SI/MAB activities.

The Smithsonian views the program as an important opportunity to produce an educational multiplier effect involving a large number of potential collaborators who are—or will be—the decision makers in their countries.

Office of Environmental Awareness

In response to the wave of public interest in environmental issues during preparations for Earth Day 1990, the Smithsonian Institution established the Office of Environmental Awareness in April. The office is dedicated to increasing public awareness and understanding of environmental issues. Office of Environmental Awareness staff work with experts within and outside the Smithsonian to disseminate information through exhibitions, publications, workshops, and public programs.

The office's first publication—the poster “A Better World Starts at Home”—offers suggestions for running an environmentally responsible household. Designed to fit on a refrigerator and distributed free, the poster was featured in a number of publications, including *USA Today*. Nearly 20,000 copies were distributed in the first five months; about 2,000 requests came from individuals in 47 states and several foreign countries.

The Arts and Humanities Division of the Rockefeller Foundation contracted with the Office of Environmental Awareness to conduct a study of current environmental activities in American museums, zoos, botanic gardens, and aquariums. With the aid of the Association of Science-Technology Centers, the office polled more than 160 institutions. The report will be published to make the information available to the American museum community.

In cooperation with Island Press and the *Los Angeles Times*, the office carried out planning for a two-day workshop for journalists in Los Angeles on October 5 and 6, 1990. It is the pilot program in a series of regional workshops to promote thoughtful media coverage of environmental issues.

The office plans to make oceans and marine-related issues the focus of its first educational campaign. A major symposium to be held in the fall of 1991 and a symposium volume, exhibition, and other related programs are the subjects of long-term planning.

During 1990, the Joseph Henry Papers achieved one of its primary objectives for the last five years: the improvement and reautomation of the index to Joseph Henry documents. Inaugurated 20 years ago when the Henry Papers project began, the computerized index is the main point of access to some 60,000 documents by, to, or about Joseph Henry (1797–1878), premier American scientist and the first secretary of the Smithsonian Institution.

The index is indispensable to research on the documents for the selective letterpress edition of the Henry Papers, and it will become the basis for the guide to the complete microform edition. In addition, scholars in the history of American science, the history of the physical sciences, and American history regularly rely on the index to locate manuscript material pertinent to their research.

The original computer system could no longer meet the project's demands for speed in entering new material and editing and retrieving existing entries. The new system, which runs on the project's local area network and is consulted through personal computers, is self-contained within the Henry Papers and offers almost instantaneous on-line response to various types of inquiry. This system will greatly facilitate the editing of the letterpress edition and ease the task of indexing the remaining Henry documents. The new document index program has already allowed the project to respond more quickly and completely to information requests.

The Joseph Henry Papers supplied research assistance to a number of other Smithsonian bureaus and offices, including the National Museum of American History, the Smithsonian Institution Archives, the Office of Architectural History and Historic Preservation, and the National Science Resources Center. Other users of the Joseph Henry Papers resources ranged from a junior high school student preparing a project on Joseph Henry for National History Day to a representative from the Alexander-von-Humboldt-Forschungsstelle in Berlin interested in American-German scientific interaction during the nineteenth century.

Staff of the Joseph Henry Papers complemented their work on the life of Henry with research on other aspects of nineteenth-century science. Paul Theerman presented a paper on James David Forbes's biographical approach to the history of science at the annual meeting of the History of Science Society. The paper was

National Zoological Park

given at a session on science biography, which Theerman also organized. Marc Rothenberg, director of the Joseph Henry Papers, spoke at the same meeting on the relationship between the Smithsonian and the federal government during the antebellum period.

The National Zoological Park entered its second century in 1990 with a greatly strengthened emphasis on education. An increase in scientific literacy among the public is urgently needed to combat the worldwide degradation of environmental quality and loss of biodiversity. With its collections of animals and plants, its trained professional staff, and its membership in the Smithsonian family, the Zoo has a unique capacity to educate more than 3 million visitors annually. The Zoo's continued transformation to a biological park, or biopark, expands its educational message beyond living animals. Visitors are introduced to the intricacy of relationships between plants and animals by learning about pollination and seed dispersal, between past and present by observing the commonalities of large dinosaurs and elephants, between invertebrates and vertebrates by noticing the superficially similar eyes of cuttlefish and humans, and between animals and culture by seeing examples of animals in art. Physics, chemistry, and mathematics are incorporated into biological messages as visitors learn about the mechanics of flight, the fundamentals of nutrition, and the measurement of body mass. The vital work of the Zoo's scientists is itself exhibited: A group of golden lion tamarins living free in an urban park highlights staff efforts to reintroduce zoo-born tamarins to the wild in Brazil.

Modernization

Construction continues on the exhibit "Aquatic Amazonia," a major new development in tropical biology and conservation education. The first phase, scheduled to open in 1992, re-creates the edge of a tropical river, immersing the visitor in a moist, teeming forest. Heat, humidity, and a medley of sound and movement will contrast with cool, quiet underwater views of fish and caiman. The forest will prepare the visitor to enter an adjacent gallery, a new kind of zoo experience that will focus on the intricate details of the complex and endangered tropical forest ecosystem. The gallery will also feature the work of Smithsonian scientists in tropical biology, showing how they wrest secrets from nature and how valuable their research is. It will also provide a continuously updated multimedia briefing on global environmental events.

In the summer of 1990, final touches were added to



A mother serval rests with one of her three cubs born March 16, 1990, the first servals born at the National Zoo since 1970.
(Photograph by Jessie Cohen)

Olmsted Walk, the Zoo's main thoroughfare. Zoo gardeners planted thousands of flowering plants, shrubs, and trees for beauty and shade. Plants were chosen to illustrate the biological significance of interaction between flowers and pollinators and fruits and fruit-eaters. Zoo craftspeople built a system of attractive railings along the length of the walkway to protect maturing plants. Two large restrooms on Olmsted Walk were renovated to enhance comfort, utility, and access for disabled visitors.

Other improvements included the restoration of a large yard for Asian one-horned rhinoceros. Adding plants to the enclosure of a voracious plant eater was a challenge to gardeners and keepers, but the rhinos enjoy the more naturalistic setting in which they now appear. In the Zoo's pioneering large outdoor flight cage, the deteriorating mesh dome was replaced, the metal support structure was repainted, and the interior was newly landscaped. The renovated exhibit will be a new multispecies experience embodying the themes of the biopark. The Australia Pavilion's roof, which also serves as an overlook, was replaced. Wallabies, gray kangaroos, and emus (large flightless birds) were added in replanted yards below. Inside the pavilion, the new 2,500-gallon Great Barrier Reef tank provides a glimpse of the intricate coral ecosystem.

Lighting was added to parking lots and walkways to provide additional safety for winter visitors and evening lecture- and concertgoers. Fire alarm systems were upgraded in several major animal buildings. Entrance doors were replaced on the Education Building and the Monkey House for greater security and easier access for mobility-impaired visitors.

Animal Programs

Servals are small cats of the African savanna with notably large ears adapted to detecting rodent prey in dense grass. The first serval breeding in a North American zoo took place at the National Zoo in 1961. But none have bred at the Zoo since 1967, and there has been little reproduction in other zoos. Curator John Seidensticker recently naturalized the outdoor serval enclosure with clumps of long grasses. The resultant seclusion may have contributed to the birth and successful mother-rearing of three serval kittens in March.

This year, the Zoo also acquired a male Sumatran tiger from the Djakarta Zoo. Sumatran tigers are an endangered subspecies and one of the 60 species whose propagation and study are coordinated cooperatively by North American zoos in Species Survival Plans (SSPs). The Djakarta male, which represents a valuable new genetic lineage, was entrusted by the tiger SSP to the Zoo because of its proven expertise in cat reproduction. The male is being introduced patiently to a potential mate. The tigers are showing friendly interest in each other, so keepers are optimistic that they will be compatible and reproduce.

Bringing cats from Djakarta to Washington is difficult and may not always be possible. Moreover, some cats may be incompatible and may never breed. The Zoo's reproductive physiology program under David Wildt is pioneering new techniques for artificial reproduction in cats. Using methods painstakingly developed with domestic cats, Wildt's lab recently succeeded in the first in vitro fertilization of tigers. In a process commonly known as test-tube fertilization, eggs were removed from a lightly anesthetized female and mixed with the semen from a male. The developing embryos were then placed in a different female, and cubs were born after a normal pregnancy. Placing the embryos in another female is a useful step when the genetic mother is for some reason unable to bear or raise young normally. Bringing the semen from a distant zoo would have required much less effort than transporting the male tiger. New freezing techniques may make it possible to use eggs and sperm even after the death of donors. These measures may also be valuable in the conservation of wild mammals. Inbreeding increases as wildlife reserves become more fragmented by human encroachment, but genetic diversity can be increased by using semen from a male in one reserve to fertilize eggs of a female in another.

Reintroduction

Sixteen black-footed ferrets were born this year at the Zoo's Conservation and Research Center in Front Royal, Virginia; 12 survived. Black-footed ferrets are extinct in the wild, but the captive population, managed by the Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service, has grown from 15

to more than 200. Jon Ballou, the Zoo's population manager, has been selecting the mating pairs that will best maintain genetic variability. Assistant Director for Animal Health Mitchell Bush, David Wildt, and Research Associate JoGayle Howard have been working with individual ferrets that have failed to reproduce. They have also developed measures to pinpoint the occurrence of ovulation and thus time the introduction of males to females for mating.

If the captive population continues to grow, black-footed ferrets will be reintroduced to the wild in 1991. Brian Miller, a postdoctoral fellow at the Conservation and Research Center, is conducting research to guide the reintroduction. To avoid any harm to the black-footed ferrets or any interruption in their breeding, Miller is using the closely related Siberian polecat as a surrogate. He is studying how zoo-born polecats recognize and avoid predators and how they learn to hunt prairie dogs. Polecats that had been trained to avoid a mechanized stuffed badger were killed by predators shortly after a trial reintroduction last year. Miller continues to seek the right kinds of experience and timing that will enable polecats, and later black-footed ferrets, to survive in the wild. The polecats were also used to solve a pest problem at the Zoo this year. When rats invaded the prairie dog exhibit, two of Miller's polecats were turned loose to rid the burrow network of rats and prepare it for the return of prairie dogs.

Curator of Birds Scott Derrickson heads the Zoo's participation in the U.S. breeding and reintroduction program for the Guam rail, another species extinct in the wild. The brown tree snake, accidentally brought to Guam, decimated the rails and other bird species not adapted to predatory snakes. Ornithologist Eugene Morton rescued the last rails from Guam in the 1980s, and several zoos have cooperated to build a captive population. In January and February, zoo-born rails were released on Rota, a snake-free island near Guam.

Medical issues are becoming prominent in the reintroduction of golden lion tamarins. Assistant Director for Research Devra Kleiman has directed the U.S. program for this species since the late 1970s. The cooperative breeding program has seen the captive population grow to more than 550. Jon Ballou orchestrates the pairings for genetic health. Benjamin Beck, associate director for biological programs, has reintroduced more than 80 zoo-born tamarins to Brazil since 1984. About

40 percent of the reintroduced tamarins survive, and 21 offspring have been born to them. All tamarins bound for Brazil are quarantined at the Zoo, where endoparasitism and other minor illnesses are successfully treated. But Mitchell Bush and Zoo pathologist Richard Montali have recently shown that a thinning of the diaphragm (the membrane in the chest that facilitates breathing) is more common and more extreme in tamarins than scientists previously thought. Since the tamarins do not seem adversely affected by this condition, Bush and Montali question whether the thinning is a real defect or simply an unusual feature typical of the species. When Bush examined about 50 of the 400 wild tamarins surviving in Brazil, he found thinning, but it was not as frequent or as extreme as in zoo tamarins. He will return to Brazil this year to reexamine reintroduced, zoo-born tamarins to test the unlikely possibility that the diaphragm will thicken with the physical activity demanded by life in the wild. A more likely possibility is that extreme thinning is a genetic defect. Until more is known, reintroduced tamarins must be screened carefully to prevent introduction of a potentially deleterious gene into the already fragile wild population.

Education

With each zoo birth, scientific breakthrough, or successful reintroduction, it becomes clearer that the crucial gains in conservation will derive from education. The threat to biodiversity stems from an expanding human population and from pressures for a greatly increased standard of living that consumes growing amounts of natural resources. This problem does not just exist in the "developing world." The deterioration of the Chesapeake Bay ecosystem and the recent extinction of the California condor and the black-footed ferret are reminders that environmental degradation occurs in our country, too. National Zoo visitors are thus a prime target audience for conservation information.

Education at the Zoo takes many forms. Volunteer teachers in the exhibit "Quick Stop" use feathers and eggs to engage visitors in the Bird House. Demonstrations throughout the Zoo feature elephants, seals and sea lions, a hawk, and an octopus, exploiting the public's fascination with animals to good effect. A micro-

scope equipped with a video camera allows visitors to explore a drop of water and delight in the microscopic world of beautiful and fast-moving plants and animals.

Plans for expanding the highly successful HERPLab are well advanced. This year, the Zoo introduced theater (*Young Charles Darwin*) and began informal participatory activities on animal locomotion, bat navigation, and elephant biology. Binoculars were provided



Kenneth C. Jackson, Jr., dressed as a *Styracosaurus*, entertained and taught children young and old in Dinamation's show, "Dinosaurs, Dinosaurs . . . A Mesozoic Musical," in the National Zoo's auditorium. (Photograph by Jessie Cohen)

for spontaneous close-up looks at especially interesting animal events. A musical comedy on dinosaurs ran in the Zoo auditorium in the summer months. New signs helped orient visitors to events and exhibits in the Zoo's 160 wooded acres. An orientation brochure and volunteers trained in sign language helped impaired visitors learn about and enjoy the Zoo's collections.

Zoo educators collaborating with staff of the Friends of the National Zoo (FONZ) served thousands of schoolchildren and their teachers with special school programs, educational materials, and training workshops. The Zoo, the National Museum of Natural History, and the National Portrait Gallery collaborated on "Bison, Butterflies, and Naturalists," a conservation program for junior high school students. The program culminated in a conservation summit at the Zoo, during which 200 students shared the successes of their community conservation projects.

Media efforts reached wider audiences. The "Smithsonian World" program "Zoo," filmed entirely at the National Zoo, provided a frank and intimate view of the emotional and intellectual challenges of modern zoo work. "Keepers of Eden," a program in the "Infinite Voyage" series, looked at the vital role played by zoos in conservation and featured the Zoo's reproductive physiology and reintroduction programs. FONZ produced and distributed "10 Ways You Can Help Your Habitat," a brochure with practical conservation tips for the urban American. FONZ's educational magazine *ZooGoer* published a special issue on rainforest ecology and conservation.

Rasanayagam Rudran's Wildlife Conservation and Management Program involved 60 participants from 25 countries in intensive courses in environmental management. Christen Wemmer, associate director for conservation, organized the Zoo Biology Training Course for 50 midlevel zoo employees in China and Indonesia.

Friends of the National Zoo

A nonprofit organization with more than 55,000 members, FONZ contributes in many ways to the Zoo's accomplishments. A record 750 FONZ volunteers worked 67,000 hours, narrating demonstrations, collecting behavioral research data, harvesting plants for the elephants, apes, and monkeys to eat, serving as in-

formation guides and learning lab teachers, planting flowers, and providing clerical assistance.

FONZ's major fund-raising effort, National ZooFari, took the Amazon rainforest as its theme and raised \$105,000 for the Theodore H. Reed Fund. FONZ's food, merchandising, and parking concessions provided \$550,000 for Zoo education and research programs and \$526,900 in contract fees to the Smithsonian Institution.

FONZ expanded its recycling program to include office paper and aluminum. Paper bags and recycled paper products are offered in the gift shops and the bookstore, and packaging, especially plastics, is being minimized in food service. In 1990, FONZ switched to recycled paper for its stationery and for much of its other printed material.

Since its founding in 1967, the program in graduate education sponsored by the Office of American Studies has encouraged research in the field of material culture, utilizing the collections and personnel of the Smithsonian Institution's many museums. An additional purpose was to overcome the separation then existing between university and museum scholars. Through formal courses conducted at the Institution, graduate students from cooperating universities are encouraged to take advantage of the opportunities offered by the national museums. Courses have covered art, technology, and social, cultural, and political history. The research interests of participating students have ranged from art to anthropology.

The 1989 fall semester seminar, "Material Aspects of American Civilization," focused on material culture and the environment. The seminar was taught by Wilcomb E. Washburn, director of the program, and Bernard Mergen of George Washington University. Twelve students participated—10 from George Washington University and 2 from the University of Maryland.

Other seminars taught during the past year included "The Decorative Arts in America," taught by Barbara G. Carson of George Washington University, and "Technology, Labor, and American Society," taught by Gary Kulik of the Smithsonian Institution. Thirty-three students participated in these seminars.

Office of Fellowships and Grants

The Smithsonian Institution offers scholars and students unparalleled opportunities to conduct research in subjects ranging from original works of art to historical and anthropological objects, from complex ecosystems on Earth to distant galaxies. To help researchers take advantage of these vast resources, the Smithsonian has developed research support programs that enable researchers of art, history, and science from the United States and abroad to use the Institution's facilities in conjunction with staff members. The Office of Fellowships and Grants (OFG) administers these programs and serves as an institutional link with scholars throughout the world. In 1990, nearly 950 undergraduate and graduate students and scholars received awards administered by OFG. These awards included both long- and short-term residential appointments.

Programs for Visiting Students and Scholars

The office awarded 93 predoctoral, postdoctoral, and senior postdoctoral Smithsonian Fellowships in 1990. Twenty-four of these awards went to foreign students and scholars from 17 countries. This year marked the 25th anniversary of the program, which enables participants to conduct independent studies under the guidance of staff. Research is carried out in the Institution's bureaus or at field sites, usually for a period of 6 to 12 months. Topics included gender and activity patterns in prehistoric populations of the Northern Plains, the significance of leaf arrangement in tropical trees, African American seamen in the Atlantic World from 1750 to 1885, bright coloration and status signaling in female warblers, and the representation of domestic servants in nineteenth-century American painting.

Twenty-five U.S. and four foreign graduate students in the early stages of their graduate training received 10-week fellowships in 1990. These awards allow students to explore areas as potential subjects for dissertation or thesis research. This year, fellows studied such topics as golden lion tamarin behavior in two zoo habitats, African American artists in Paris from 1922 to 1932, and mineralogy of Mexican shield volcanoes and cinder cones.

Four Smithsonian Institution Regents Fellows—all distinguished scholars—were in residence in 1990. Jack Goody of St. John's College, Cambridge, examined dif-

ferences in social organization and patterns of cognition in comparative and historical perspectives at the National Museum of Natural History. Michael Kammen of Cornell University worked at the National Portrait Gallery on American culture since 1870, emphasizing the increasing role of tradition and social memory in a society with a democratic ethos. Malcolm Longair of the Royal Observatory and University of Edinburgh conducted research at the Smithsonian Astrophysical Observatory on topics including theoretical astrophysics, cosmology, and extragalactic X-ray sources, and infrared, submillimeter, and radio astronomy. Robert Ricklefs of the University of Pennsylvania began his research at the Smithsonian Tropical Research Institute on the ecological and evolutionary interpretations of the life history of birds.

The Faculty Fellowship Program encourages minority faculty members to conduct research at the Institution for two- to four-month periods. In 1990, two awards were granted. Glenda Gill's research at the National Portrait Gallery focused on the factor of class in the career of Ethel Waters, and Marcia Battle studied America's post-World War II minority photographers at the National Museum of American Art.

The postdoctoral fellowship program in molecular evolution and plant physiology entered its second year in 1990. A two-year award enabled Thomas Parsons to conduct research on the molecular phylogeny of the extinct birds at the National Museum of Natural History.

The office developed a new fellowship program to promote research cooperation in selected studies of botany between Smithsonian scientists and their university colleagues. Funded by the Andrew W. Mellon Foundation, the program encourages work between teams of junior and senior scientists and fosters closer ties between Smithsonian research programs and those of other institutions. One award was made this year to conduct research on the ecological relationships of the Brazil nut family (*Lecythidaceae*) at the National Museum of Natural History. Two awards were offered to fellows at the Smithsonian Tropical Research Institute who studied the causes of genetic structure in tropical tree populations and the hydraulic architecture and vulnerability of xylem to cavitation events in evergreen and deciduous tropical trees.

In addition to the Institution-wide programs, the OFG administers fellowships and other awards sup-

ported with funds from bureau sources. At the National Air and Space Museum, 1990 awards included appointments to the Daniel and Florence Guggenheim, A. Verville, and International fellowships. Two fellowships were awarded under the James Renwick Fellowship Program in American Crafts, which encourages research in the history of twentieth-century American art, craft, or design. In addition, the Smithsonian Astrophysical Observatory offered four postdoctoral and seven predoctoral fellowships. The OFG administered 135 awards with bureau funding for visitors to come to the Institution for varying periods.

Seven postgraduate internships for research and training in subjects ranging from art conservation to paper conservation were awarded by the Conservation Analytical Laboratory (CAL). These interns were in residence at CAL, the Cooper-Hewitt National Museum of Design, the National Museum of American Art, the National Museum of African Art, the National Museum of American History, and the National Museum of Natural History.

OFG continued to sponsor its popular Short-Term Visitor Program, which allows scholars to conduct research at the Institution and to collaborate and interact with Smithsonian staff. In 1990, the program provided 142 short-term travel grants, including 97 to international visitors from 31 countries.

The successful OFG workshop program again supported groups of scholars in research, education, and museological fields to discuss issues of mutual or complementary interest. Last year, 13 workshops were organized by Smithsonian staff members. The topics included Uto-Aztecán religion and cosmology; the construction of the ancient Near East; the history of science, technology, and medicine in the Western Hemisphere and the Iberian Peninsula; the utility of controlled feeding experiments in interpreting stable isotope values; and digestive strategies of animals.

Internships and Other Programs

Internships are often an integral part of college and university undergraduate and graduate programs because they provide valuable learning experiences. The Office of Fellowships and Grants administers all internship appointments at the Institution that are supported

with stipends. In 1990, these included 22 at the National Air and Space Museum, 4 at the National Museum of American Art, and 14 in the Smithsonian Environmental Research Center's work-learn program. The Departments of Botany and Vertebrate Zoology at the National Museum of Natural History supported 31 interns. Fifty-two interns received stipends with funding from other bureaus.

Nine students participated in the Smith College-Smithsonian Program in American Studies. This program offers a seminar course and research projects conducted under the supervision of staff members.

High school students took advantage of the Institution's internship opportunities through programs offered by the Office of Elementary and Secondary Education. Forty-three students participated in five-week sessions at the Smithsonian designed to broaden an existing academic or vocational skill.

Applications increased this year for OFG's internships aimed at increasing the participation of minorities in Smithsonian research activities and fields of interest. Forty-two undergraduate and graduate students from across the country came to work at a variety of bureaus and offices. Research topics included a study of stress in large cats and bears at the National Zoological Park, the design of aspects of the Smithsonian's new Experimental Gallery, research for the Duke Ellington Collection at the National Museum of American History, and a study of relations between African Americans and Native Americans at the National Museum of American History.

During the past year, OFG continued a program for Native American students and scholars to utilize Native American collections at the Institution. Under this program, 19 awards were made.

One student received an appointment through the Cooperative Education Program, which is aimed at minority graduate students whose research interests coincide with those of the Institution. Students in this program work in professional research-related jobs at the Smithsonian while continuing their university educations. The appointments hold the potential for permanent employment at the Smithsonian.

The Education Fellowship Program also is intended to encourage the participation of minority students in the Institution's fields of interest by offering support for graduate study and research training. One fellow

Office of Interdisciplinary Studies

completed his master's degree in anthropology at the University of Massachusetts and is continuing his fellowship by working on his doctoral degree at the University of Florida.

The Webb Fellowship Program, named in honor of Regent Emeritus James E. Webb, promotes excellence in the management of cultural and scientific nonprofit organizations. This year, three professional staff members from the Smithsonian received fellowships to enhance their administrative abilities. The recipients came from the Smithsonian Tropical Research Institute, the National Museum of American Art, and the Smithsonian National Associate Program.

The Scholarly Studies Program makes competitive grants for research by Smithsonian staff and outside collaborators that does not fall within the purview of traditional funding sources. A review committee of scholars from outside the Institution met twice in 1990 and awarded 39 one- and two-year grants.

The Research Resources Program supports archival projects that arrange, describe, preserve, and make more widely available to the public selected archival materials and document collections of major importance to research. In 1990, a review committee of archivists from outside the Institution recommended that 11 grants be awarded.

The Office of Interdisciplinary Studies (OIS) found a new administrative home in the Office of the Assistant Secretary for Research, where its scholarly and educational programs are being pursued with fresh purpose and direction. Director Wilton S. Dillon assumed new responsibilities as a senior scholar in residence in the Office of the Assistant Secretary for Research.

International Symposia Series

The Smithsonian's 10th international symposium took place October 25–28, 1989, in Charlottesville, Virginia, and Washington, D.C. "Les Droits de l'Homme and Scientific Progress," cosponsored by the National Academy of Sciences, commemorated the bicentennial of the French Revolution, the U.S. Bill of Rights, and the French Declaration of the Rights of Man and of the Citizen. Nearly 50 essayists and commentators from the United States and France reexamined the ideas and institutions of the eighteenth-century Enlightenment; its influence on science, education, and human rights; and the relationship in contemporary life between science and human rights. The University of Virginia and the Virginia Commission on the Bicentennial of the U.S. Constitution were pivotal in organizing the symposium.

Few programs in the international series have received as much praise from participants. Many of them had never met or shared their common concerns on issues of science and human rights; they have made plans to gather again in Paris to continue their dialogue and collaboration. Another consequence of the symposium is a plan to convene a sequel, "Human Rights and Social Change," at the Hungarian Academy of Sciences, Budapest, in April 1991 under the sponsorship of the Friends of Raoul Wallenberg Foundation.

Wilton Dillon, director of "Les Droits de l'Homme and Scientific Progress," is editing the symposium volume with Craig A. Reynolds for publication in the United States and France. A comprehensive symposium summary is available upon request.

World Food and Agriculture Series

The Smithsonian served as host in October to the third annual presentation of the World Food Prize, the fore-



Participants taking a break at the international symposium, "Les Droits de l'Homme and Scientific Progress," at the National Academy of Sciences, included (left to right): Frank Press, president, NAS; Charles McC. Mathias, chairman, American Committee on the French Revolution; and Wilton S. Dillon, symposium director. In the background is principal adviser Walter A. Rosenblith, Massachusetts Institute of Technology.

most international prize recognizing an individual's achievements leading to significant improvements in the quantity, quality, and availability of food in the world. Verghese Kurien, chairman of the National Dairy Development Board of India, was the 1989 prize laureate. Kurien has built and managed the world's largest agricultural development program, a cooperative-based industry of milk and dairy products that serves more than 170 million consumers. In conjunction with the award ceremonies, OIS organized an international colloquium titled "Sharing Innovation: Global Perspectives on Food, Agriculture, and Rural Development." Speakers from India, the People's Republic of China, Indonesia, Nigeria, and Chile discussed a variety of cutting-edge issues in food and agriculture: rainfed agricultural technologies; integrated, community-based farming systems in Africa; the role of agricultural science and research in spurring rice production in Indonesia; China's adoption of market prices and other agricultural reforms; and the development of Chile's highly successful export industry in fruits and vegetables.

Intramural Seminars

"Ways of Knowing," begun in 1987 to offer Smithsonian staff a forum to probe broad questions of philosophical interest that also have practical implications for the Institution's work, meets quarterly. The May 14

gathering focused on the meanings of health and illness as affected by culture and gender; "Exploring Large Questions in Small Places," held on July 12, investigated the relations between the broad and the particular in the context of acquiring and interpreting knowledge in the sciences, social sciences, and humanities.

To further foster the generation and communication of new ideas—OIS's stock-in-trade—and to promote integration among individuals and programmatic units in a large and diverse organizational structure, OIS initiated two seminar series in the fall of 1990. "Research at the Smithsonian" is designed to expand exchange among scholars in all Smithsonian research centers and to explore research itself from a variety of disciplinary perspectives. Another bimonthly series will address cultural diversity—an often-heard term and a high Smithsonian priority that needs clarification and discussion.

Curriculum Materials

The office's first educational video for high schools, "Democracy and Rights: One Citizen's Challenge," won several awards for its portrayal of an individual's struggle for the right to equal educational opportunity. A second video titled "Citizen Stories" is in production; it examines the reciprocal relationship of rights and responsibilities in American democracy. Citizen participation, responsibility, and service are illustrated

Smithsonian Astrophysical Observatory

through four case studies of young Americans who have taken the initiative to improve the well-being of their communities. Produced jointly with the Close Up Foundation, both videos have adapted scholarly materials generated at OIS's 1987 international symposium, "Constitutional Roots, Rights, and Responsibilities."

On July 26, 1990, OIS convened a workshop at the National Air and Space Museum to introduce science educators to a variety of models for space science instruction and curricula in elementary and middle schools. One model that was demonstrated, "The Cultures of the Imagination" (COTI jr.), has been tested in several Fairfax County, Virginia, public schools. Jeffrey Goldstein, an astrophysicist at the museum, spoke about the scale of time and space in the universe and gave the educators a range of concepts and methodologies for adopting space science in the classroom. Sixty science teachers, curriculum specialists, and scientists from the National Science Foundation, the National Science Teachers Association, and the Smithsonian focused productively on the value of space science in motivating young people to study science and math.

Publications

A fundamental component of OIS's function is to disseminate the findings of its intellectual and scholarly investigations to a wide audience. The office's programs are the source of 15 books and several special issues of journals to date. Published this year were *Sharing Innovation: Global Perspectives on Food, Agriculture, and Rural Development*, edited by Neil G. Kotler, and *Governing a Changing Society: Constitutionalism and the Challenges of New Technology*, edited by Robert S. Peck. *Man and Beast Revisited*, edited by Michael H. Robinson and Lionel Tiger, is in press; the manuscript for *Constitutional Roots, Rights, and Responsibilities*, edited by A. E. Dick Howard, has been completed. *Contemporary Indian Tradition*, edited by Carla M. Borden of OIS, was copublished by Oxford University Press in New Delhi and has been reviewed in many journals and newspapers.

To propagate information not only on OIS's activities but on interdisciplinary programs elsewhere at the Institution and to spark curiosity about current questions facing scholars and administrators, OIS now issues a newsletter twice a year.

A century ago this year, Samuel Pierpont Langley—physicist, aeronautical pioneer, scientific visionary, and the Institution's third secretary—founded the Smithsonian Astrophysical Observatory (SAO) for studies of what he called "the new astronomy." Langley's primary interest was the Sun, but his persistent probing of the complex interrelationship of solar and terrestrial phenomena was the basis for modern astrophysics.

Today, the unusual observatory he established in a modest wooden structure behind the Castle on the National Mall has evolved into a multidisciplinary research center headquartered in Cambridge, Massachusetts, and is internationally recognized as a leader in astronomy, astrophysics, and the space sciences.

In partnership with the Harvard College Observatory, SAO now forms the Center for Astrophysics, which is organized by divisions representing the diverse interests of its joint scientific staff: atomic and molecular physics, high-energy astrophysics, optical and infrared astronomy, planetary sciences, radio and geoastronomy, solar and stellar physics, and theoretical astrophysics. The Institute for Theoretical Atomic and Molecular Physics, located at the center, annually hosts some 50 visiting scientists and graduate students who work and study with SAO staff members. The Central Telegram Bureau and the Minor Planet Center operated for the International Astronomical Union provide rapid dissemination of astronomical discoveries for the entire world. SAO also participates in Project STAR, a curriculum development program designed to improve the teaching of secondary school science and mathematics through examples from astronomy. In addition to developing and testing educational materials, STAR holds summer training institutes for secondary school teachers.

Data-gathering facilities include the Fred Lawrence Whipple Observatory in Arizona, site of the Multiple Mirror Telescope operated jointly with the University of Arizona; the Oak Ridge Observatory in Massachusetts; the George R. Agassiz Radio Astronomy Station in Texas; and a millimeter-wave radio astronomy facility in Cambridge. SAO scientists also have access to ground-based facilities elsewhere, and they conduct satellite, rocket, and balloon experiments.

Tradition, Continuity, and Imagination

Despite its extraordinary growth and diversification in the past century, SAO remains faithful to Langley's original vision: to understand the physical processes that determine the nature and evolution of the universe. In fact, the eclectic and multifaceted Langley probably would be delighted by the scope and variety of SAO's current research, as exemplified by the following selected results from the past year.

The largest single coherent structure ever seen in nature—a “great wall” of galaxies stretching more than a half-billion light-years over space—was identified by two SAO astronomers as part of their long-term project to construct a three-dimensional map of the universe based on galactic redshifts. (One of those researchers was awarded a coveted John D. and Catherine T. MacArthur Foundation “genius grant” fellowship for her contributions to this effort.)

Two other SAO scientists made the first astronomical detection of submillimeter-wave radiation from “hot” water masers in star-forming regions of our galaxy; the temperature of this water vapor is nearly 2,000° K. Made with the Caltech Submillimeter Observatory on Mauna Kea in Hawaii, these observations of “hot” water bode well for SAO's proposed high-angular-resolution investigations of star-forming regions.

Radar images of a small Earth-approaching asteroid obtained by SAO scientists and colleagues at the Jet Propulsion Laboratory in Pasadena, California, and the Arecibo Observatory in Arecibo, Puerto Rico, show it to be dumbbell-shaped, perhaps resulting from the collision of two separate objects, each about one-half mile long. The images, the first to provide direct evidence for a strongly bifurcated distribution of mass in such objects, were obtained with the 1,000-foot-diameter radar telescope at Arecibo in 1989 when this asteroid passed within 4 million miles of Earth.

A Delta rocket carrying *Roentgensatellit* (ROSAT), a joint project of the Federal Republic of Germany, the United Kingdom, and the United States, soared into space at 5:48 P.M. EDT on June 1, 1990, from Cape Canaveral, Florida. The largest X-ray telescope ever flown, ROSAT is equipped with a High Resolution Imager built by SAO to provide clear pictures of cosmic X-ray sources. The ROSAT mission, which will last more than 18 months, will first map the entire sky in

X-rays and then make a detailed study of selected objects. ROSAT's sensitivity is several times greater than that of the Einstein (HEAO-2) Observatory launched in 1978 and designed in part by SAO scientists. Test images taken in early July, including one of the compact binary source Cygnus X-2 and several supernova remnants, proved letter-perfect. SAO also operates one of two U.S. data analysis centers for ROSAT.

Using a special 10-meter-diameter Cherenkov light detector at the Whipple Observatory, a team of SAO astronomers conclusively identified the Crab Nebula as the strongest source of cosmic gamma-rays. The detection thus establishes that object—a star that exploded 900 years ago—as a benchmark for pinpointing other sources of the universe's most energetic radiation.

The successful flight in June of a balloon-borne far-infrared spectrometer made additional measurements of the molecular constituents of the Earth's upper atmosphere. As part of a continuing effort to understand the complex interaction between solar radiation and atmospheric particles and its effect on global change, this research represents a modern extension of one of Langley's most cherished scientific goals.

Innovation, Invention, and Instrumentation

Among the many other institutional philosophies Langley established was a willingness to experiment with new technologies and innovative procedures intended to expand the frontiers of science. Langley himself made ventures into manned flight and invented several astronomical instruments, including the bolometer, which made possible the first observations at infrared wavelengths. A half-century later, another SAO director, Fred Whipple, inspired the creation of two innovative instruments: the Baker-Nunn camera, which provided optical tracking of early artificial satellites, and the Multiple Mirror Telescope, which revolutionized modern concepts of how to build large optical instruments. In the past two decades, SAO scientists have contributed to a host of new developments, including electronic detectors, computer-based data processing and analysis, X-ray space observatories, remote telescopic operations, atomic clocks, tethered satellite systems, and balloon-borne telescopes, as well as advanced

laboratory techniques for simulating basic atomic and molecular processes in space.

As SAO enters its second century, this spirit of invention, innovation, and imagination continues, with several major initiatives in the past year. A dozen SAO astronomers were selected as guest observers to use the Hubble Space Telescope (HST), the first in the National Aeronautics and Space Administration's (NASA's) series of "Great Observatories" planned for launch during this decade. (When problems developed with HST's optics, NASA sought advice from SAO specialists on image improvement using computer-enhancement techniques.) For the second project in this series—the Gamma-Ray Observatory (GRO) satellite—SAO will coordinate ground-based observations in support of the space studies. The lead instrument in this three-year international collaborative effort will be the 10-meter gamma-ray telescope operated at SAO's Whipple Observatory.

This year, SAO was awarded a \$26.7 million contract from NASA to design and construct a High Resolution Camera for the Advanced X-Ray Astrophysics Facility (AXAF), now expected to be the third "Great Observatory." At the same time, SAO has embarked on an ambitious program to create innovative telescopes for ground-based use. For example, a 0.75-meter-diameter Automated Photoelectric Telescope installed at the Whipple Observatory took its "first light" on the evening of October 15–16, 1989, marking a milestone in the development of robotic observatories. The small, relatively inexpensive, and totally automatic telescope is the prototype for similar instruments in SAO's proposed world network devoted to long-term monitoring of cyclic celestial phenomena.

Also at the Whipple Observatory, plans for converting the six-element Multiple Mirror Telescope to an instrument with a single mirror 6.5 meters in diameter continued. Engineering designs were completed and the raw glass obtained in preparation for spin-casting this giant primary mirror in 1991.

SAO's major instrument for the future is the Submillimeter Wavelength Array, six submillimeter-wave telescopes designed to make high-resolution observations in the last band of the electromagnetic spectrum to be explored from Earth. This wavelength is ideal for observing a host of "cool" objects, ranging from comets to newborn stars, as well as for detecting nonthermal



The Fred L. Whipple Observatory, principal observing site of the Smithsonian Astrophysical Laboratory, is located on Mt. Hopkins, Arizona, 35 miles south of Tucson. This aerial view to the north shows the Multiple Mirror Telescope at the upper left center, atop the 8,500-foot-high summit; other observing facilities are arrayed along a ridge 1,000 feet below. (Photograph courtesy of Whipple Observatory)

radiation from quasars. The potential for making unexpected discoveries and for gaining new insight into the nature of the universe is immense.

Appropriately, the sensitive detectors being designed for this array and intended to capture radiation in the band lying between infrared light and radio waves are direct descendants of the bolometer created by Samuel Pierpont Langley at the time of SAO's birth.

Smithsonian Environmental Research Center

Scientists at the Smithsonian Environmental Research Center (SERC) are on the cutting edge of studies contributing to a better understanding of complex environmental phenomena and problems, including many aspects of global environmental change. In Edgewater, Maryland, on 2,600 acres bordering the Rhode River, a tributary of the Chesapeake Bay, SERC researchers are conducting long-term interdisciplinary studies in the field and in the laboratory.

The center complements its research activities with educational programs for students—from undergraduates to postdoctoral fellows—and for the public. Teacher- and docent-led tours acquaint the public with the center's mission and facilities. Hikes along the two-mile Discovery Trail and center-organized canoe outings on the tidal river introduce visitors to the wonders and fragility of the coastal environment.

Through regular seminars, center researchers and their counterparts from universities and governmental laboratories keep each other abreast of work and issues in areas of mutual interest. In addition, the center organizes and hosts scientific workshops on a variety of topics.

The following examples of 1990 research activities show how SERC studies help to unravel the complex web of factors that influence the environment's well-being. Research is conducted by staff scientists, who represent diverse disciplines, and by visiting scientists and students.

Population Dynamics of Woodland Herbs

SERC scientists have been studying 34 populations of the crane-fly orchid for 13 years at the Smithsonian's Edgewater research site. During this time, the total number of individual orchids has declined by 65 percent. Most of this decline is the result of high mortality in the larger populations; 12 of the original populations were completely lost. Through observations and experiments, scientists learned that increases in deer or rodent populations were responsible for decreases in crane-fly orchid populations.

Declines in Migratory Birds

During the last 40 years, there have been well-documented severe decreases in the populations of many woodland birds in eastern North America. Most of these species are neotropical migrants that winter in the tropics and inhabit the eastern forests only during the breeding season. These species usually make up 65 to 85 percent of the individual breeding birds in these forests. The population declines seem to be largely due to forest fragmentation in both the breeding and the wintering grounds. In a few well-studied large, undisturbed forest tracts, breeding bird populations have increased significantly, but in the more common smaller forest fragments, the populations have fallen dramatically. In the breeding areas, this situation is attributed to the preference of many species for a forest interior habitat. These species do not nest or feed in forest edges.

Wintering migrant birds make up 40 to 50 percent of the individual birds in Mexico, the Bahamas, and the Greater Antilles. For some years, SERC scientists have been studying the effects of forest disturbance in the Yucatán Peninsula of Mexico on these wintering bird populations. Forty-two species of migrants are regularly found in the Yucatán. Most of these species prefer tropical forest for their wintering habitat. Although most species tend to avoid highly disturbed vegetation, none are restricted to mature tropical forest. Newer Mexican land use practices, such as mechanized row cropping and large-scale cattle ranching, are harmful to most species of migrants.

Forest Canopy Atmospheric Interactions

SERC is conducting global change research on the rates of exchange of gases between hardwood deciduous forests and the atmosphere. A 160-foot-high walk-up research tower is used as an instrument platform. The validity and generality of the research findings depend on a detailed understanding of the forest surrounding the instrument tower. The forest stand originated from forest regrowth on farmlands abandoned in the early 1800s. SERC scientists mapped, measured, and identified the trees within a 5,000-square-meter area around the tower. The stand is dominated by tulip poplar but includes 17 species of trees. Scientists characterized the

canopy with respect to leaf area, mass, and number for each of these species. Intensive studies already under way are investigating the entire adjacent forest area and its effects on the meteorological mixing rates between the forest and the atmosphere.

Greenhouse Effects on Tidal Marshes

SERC research on the effects of increasing concentrations of carbon dioxide in the atmosphere on brackish tidal marsh plant communities was extended this year. Experimental chambers have been enriched continuously with carbon dioxide for three growing seasons. Data from these enriched chambers are compared with control chambers and with control plots outside the chambers. The results help SERC scientists predict the effects of rising levels of atmospheric carbon dioxide, which cause the “greenhouse effect.”

Previous results included large positive effects on above-ground growth, increased water-use efficiency, increased photosynthetic rates, and delayed dormancy in the fall. New results focus on below-ground effects. The biomass of tidal marsh plants is located predominantly in below-ground organs such as roots, rhizomes, and tubers. Elevated carbon dioxide caused an 83 percent increase in root mass in a sedge community. These roots also contained less nitrogen. However, elevated carbon dioxide had no effect on root mass or nitrogen content for a grass species, *Spartina patens*. Thus, the effects of elevated carbon dioxide are species specific. The large below-ground effects reinforce the significance of the previous above-ground findings. These plant communities will increase their mass and help reduce atmospheric concentrations of carbon dioxide as the atmospheric gas composition changes.

Dynamics of Cattails in a Chesapeake Bay Marsh

The narrow-leaved cattail, *Typha angustifolia*, occurs widely in the lower-salinity tidal marshes of the Chesapeake. SERC has conducted a long-term study of the effects of seasonal and interannual variations of salinity on the growth and resource allocation of this species. In a typical year, watershed discharges peak in late winter and spring, flushing most of the salt from these

habitats. Then tidal action gradually increases the salinity during the summer and fall, placing physiological stress on the plants. During drought years or series of drought years, as in much of the 1980s, the salinity increases earlier and reaches higher maximum levels. During years of high salinity, flowering was reduced tenfold, shoot density by 50 percent, shoot height by 30 percent, and overall above-ground mass threefold. Roots and rhizomes were also restricted to shallower depths in high-salinity conditions.

In a field experiment, plots of cattail were manipulated to measure the effects of nutrient fertilization and recycling by litter decomposition. Peak above-ground plant mass was increased by nitrogen and phosphorus fertilization except in years of high salinity. Nutrient addition also increased flowering and increased the nitrogen and phosphorus content of the plant tissues. However, nutrient addition also resulted in higher infestations by shoot-boring moth larvae. Manipulations of the litter amount seemed to have effects attributable to the physical structure of the litter rather than its nutrient content. The decomposing litter takes up nutrients. Thus, those plots with increased litter removed more nutrients from the tidal water, but the nutrient content of the soils was unaffected.

Ultrasonic Telemetry of Blue Crab Ecology

SERC has been a pioneer in the development of underwater biotelemetry and its application in studies of the blue crab in the Chesapeake Bay. Since the bay is usually very turbid, free-ranging crab behavior is difficult to observe, even by scuba divers. A small, lightweight ultrasonic transmitter was developed that can operate on one set of batteries for up to eight weeks. The transmitter emits regularly recurring short pulses of sound for tracking and long pulses when triggered by crab activity. In some cases, the transmitters were triggered by the action potentials of crabs' jaw muscles. These muscles are used only when the crab is eating, so these signals, monitored on hydrophones, can be used to measure the number of bites needed to consume a food item. Number of bites and length of feeding time are both correlated with the size of the prey specimen. In one study, a crab was tracked continuously for 96 hours. It traveled more than 2 miles at an average

speed of 38 feet per hour but showed periods of rapid movement of up to 1,000 feet per hour. The crab fed 2 to 7 times per day, with feeding bouts consisting of 15 to 2,750 bites. No evidence was found for diurnal or tidal feeding cycles.

Telemetry was also used to measure crab habitat preference for molting. All crabs studied selected very shallow marsh-lined tidal creek banks for molting.

The Smithsonian Institution Archives (SIA) accessions, preserves, and provides research service on permanently useful official records of the Institution. The Archives collects personal records of Smithsonian scholars, records of professional societies associated with the Smithsonian Institution, and audio and video recorded interviews with principal figures in the history and development of the Institution. The Archives staff provides professional outreach services to archives in Smithsonian offices and bureaus and to museum archivists throughout the United States.

Highlights of the Year

During the past year, the Archives accessioned about 700 cubic feet of records and other historical materials, bringing the total holdings to 16,000 cubic feet. Significant accessions included Hornblower and Marshall drawings for the Natural History Building and a set of competition drawings, including winning entries by Eliel and Eero Saarinen, for the Smithsonian Gallery of Art. The Oral History Collection now totals nearly 380 hours of tape recordings and 5,800 pages of transcript. Both audio and video interviewing concentrated on Smithsonian work in conservation of endangered species and the history of the National Zoological Park and the Smithsonian Tropical Research Institute.

The records center resumed full-scale operation after a three-year hiatus due to lack of space. More than 300 cubic feet of inactive records were received into the center pending disposal, while close to 300 cubic feet of records were destroyed according to authorized schedules.

In May 1990, a committee of archivists and historians from outside the Institution, appointed and charged by the assistant secretary for research, reviewed the operations of the Smithsonian Archives. The committee found the mission and the archival planning program to be sound and urged their more systematic implementation. Not surprisingly, the committee found the Archives' mission and objectives ambitious beyond available resources.

Other accomplishments during the year included the development of a formal records disposition plan for the Archives of American Art and a records survey of the Museum of the American Indian in New York. The



U.S. Department of Agriculture entomologist Eugene Amandus Schwarz, ca. 1915, empties a bag of insects onto a table for study at Plummer's Island, Maryland. This photograph was part of a collection of photographs of entomologists processed by the Archives this year.

Archives published a *Guide to the Papers of Alexander Wetmore*, sixth secretary of the Smithsonian Institution, written by William E. Cox, and volume 1 (National Museum of American History) of *Guide to Photographic Collections at the Smithsonian*, by Diane L. Vogt-O'Connor and the staff of the photographic collections survey project. Preservation and conservation activities included the conservation of 90 historic drawings of Smithsonian buildings and the photographic duplication onto mylar and retirement to the Archives of another 200 architectural drawings; the copying onto

safety film of 2,000 nitrate negatives; and a survey of oversized materials that revealed some 38,000 items already in the Archives in need of preservation or conservation treatment.

Projects

The Smithsonian Videohistory Program, in its fourth year of experimental work under a grant from the Sloan Foundation, continued to support research work of Smithsonian historians. Projects included black aviation pioneers, robotics, the Manhattan Project, astronomical satellites, medical technology, the RAND Corporation, Soviet space medicine, chronometer manufacturing, and the technology of modern infantry weapons.

The photographic collections survey project sent volume 2, a guide to photographic collections in science bureaus, to press for publication next year and continued work on volume 3, devoted to art museums.

William A. Deiss provided archival support to the National Zoological Park for the centennial celebration in the fall of 1989. Alan L. Bain assumed responsibility for publishing and distributing *Museum Archivist*, the newsletter of the Museum Archives Section of the Society of American Archivists. Diane L. Vogt-O'Connor continued work with Richard Pearce-Moses of Arizona State University on a thesaurus of photographic terminology and wrote an introductory chapter to *Images of America*, a volume of photographs and text tracing the history of American photography published by Smithsonian Institution Press. Pamela M. Henson completed and successfully defended a doctoral dissertation on the work and influence of entomologist John Henry Comstock.

Research and Publications

Publications based in part on research in the Smithsonian Archives included Stephen Jay Gould's *Wonderful Life: The Burgess Shale and the Nature of History* (New York and London: W. W. Norton, 1989); an article by Ellis L. Yochelson of the U.S. Geological Survey titled "Geological Time as Calculated by C. D. Walcott," in *Earth Sciences History* 8, no. 2.

(1989):150–58; and three articles by Edward F. Rivinus on Spencer Fullerton Baird in scholarly publications. Pertinent doctoral dissertations published included Debra J. Lindsay's "Science in the Sub-Arctic: Traders, Trappers, and the Smithsonian, 1859–1870," University of Manitoba, 1989; and Margaret D. Champlin's "Raphael Pumpelly and American Geology in the Gilded Age," University of California, Los Angeles, 1989.

The Archives Research in Progress lecture series continued with talks that included "Building a Research Center in Tropical America: The Origins of the Smithsonian Tropical Research Institute," by Joel B. Hagen of Radford University; "Ferdinand V. Hayden, Geologist-in-Charge," by James Cassidy, a doctoral candidate at the University of Pennsylvania; and "The Origins of the Technology Collection in the National Museum: George Colton Maynard, 1896–1918," by Richard Loomis, consultant in the Division of Electricity, National Museum of American History.

Archives Council

The Smithsonian Archives and Special Collections Council issued a manual of standards for archival materials and storage conditions, an office memorandum on the use of permanent paper for official Smithsonian records, and an office memorandum on management of archives and special document collections of the Smithsonian Institution. The council represents a score of archives and documentation units that hold more than 54,000 cubic feet of textual material, close to 5 million still photo images, nearly a billion running feet of motion picture film, almost 100,000 sound recordings, and some 6,000 video recordings. Although administered by different bureaus, together the units require staffing in excess of 130 positions and funding of nearly \$6 million per year in operating costs. These units range in size from some so small they have only one staff member to a Smithsonian bureau (the Archives of American Art). They perform vital research support functions by acquiring, preserving, and providing a rich social historical context of original documentation that is primary evidence for better understanding the significance of the national collections of scientific specimens, technological artifacts, and objects of art.

The Smithsonian Institution Libraries (SIL) builds bridges to the future and to the past, offering its users technologically advanced information services as well as innovative programs ensuring that the Libraries' irreplaceable collections will not be lost. Accomplishments in both areas marked this fiscal year.

Moving toward the future, 12 locations in the branch library system received improved access to the library catalogue in SIBIS, the Smithsonian Institution Bibliographic Information System data base. Users and staff in the branch libraries who had unreliable "dial-up" access now have assured dedicated telecommunications linkages to the on-line catalogue. The Libraries uses SIBIS for acquisitions, cataloguing, and increasingly for circulation and inventory control. This year, four more branch libraries automated their circulation records—the National Air and Space Museum, the Anthropology Library of the National Museum of Natural History, the Museum Reference Center, and the Office of Horticulture—bringing to eight the number of locations now using the automated circulation system. Automated circulation greatly facilitates the tracking and location of items in the collections. Approximately 20,000 new items were added to the SIBIS data base this fiscal year. SIL's staff uses computer-supported systems for most internal library operations and for resource sharing and communication with other libraries. To answer user inquiries, Central Reference Branch staff conducted more than 600 on-line searches of remote data bases.

Preserving the past, SIL received special funding to establish a Brittle Books Program to rescue the endangered one-third of the Libraries' collections that otherwise would crumble and literally turn to dust. Materials heavily used by researchers and published after 1860, when wood pulp and acidic chemicals were introduced in paper manufacture, will be lost from the collection unless their contents are preserved. Under the Brittle Books Program, SIL staff will begin the labor-intensive process of reviewing and selecting deteriorated materials and then restoring them or replacing them with reprints, microfilm, or photocopies. These ambitious efforts began this year with the hiring of preservation staff and the construction of work space to consolidate all preservation-related units, including the commercial binding and preparation section and the Book Conservation Laboratory.



On June 13, 1990, donors Mr. and Mrs. Hewlett W. Lewis (seated) presented a collection of books to the Office of Horticulture Branch Library, accepted by Branch Chief Susan Gurney, Reference Librarian Marca Woodhams, and Smithsonian Institution Libraries Director Dr. Barbara J. Smith (left to right). (Photograph by Rick Vargas)

In another major preservation project—now nearly completed—a commercial publisher microfilmed more than 1,500 deteriorating publications in the SIL collections that relate to the international expositions and fairs held between 1834 and 1915. Three of the four units of microfilm in the *Books of the Fairs* project are now available for purchase by libraries and scholars, and SIL staff continued work on an illustrated guide to the SIL collection of books on fairs.

Reference Services for Library Users

SIL strengthened its support of the Institution's research programs with the addition to the staff of Bonita Perry as assistant director, Research Services Division. SIL hired two new chief librarians this year as well: Vielka Chang-Yau at the Smithsonian Tropical Research Institute (STRI) branch library and Kim Kel-

ley at the Museum Support Center branch library. Sylvia Churgin was appointed chief librarian of the Museum Reference Center upon her return from four and a half years of service as chief librarian at the STRI branch.

SIL's services to library users in the Institution's museums, research facilities, and offices include direct daily support in 14 branch libraries. While most are on or near the National Mall, SIL has branch libraries in New York City, on Chesapeake Bay, in Cambridge, Massachusetts, and in the Republic of Panama. In Panama at the STRI branch library, despite dangerous disruptions to civil order and a U.S. military invasion, SIL staff dispensed professional services as usual. Tina Lesnik, detailed from her position as chief of Acquisitions Services at SIL in Washington, was acting librarian for six months until the new chief librarian arrived. The library provided quality services to 8,470 users, established a Library Advisory Committee, continued work

on the Panama Bibliography, and hosted a visit from Guillermo Endara, president of Panama. As members of a committee for the reconstruction of Panama, STRI branch library staff are addressing issues of the legal deposit of Panamanian publications and the conservation and dissemination of national literature.

The National Museum of Natural History's Anthropology Library merged its collections from the Bureau of American Ethnology and the Smithsonian Office of Anthropology, shifting 17,255 linear feet of books and relabeling 21,224 volumes. The collection is remarkable for its early studies of Native Americans, particularly their languages. SIL staff in nine branch libraries prepared and distributed new-title lists and bibliographies to Institution staff, the public, and libraries in the United States and abroad. Bibliography topics ranged from "AIDS Information" to "Xeriscaping," the use of drought-tolerant plants and landscaping techniques that conserve water. Staff of the 14 branches answered 61,000 reference questions, borrowed 9,500 books or articles from outside libraries, and loaned 4,800 items to outside libraries. The number of items circulated both inside and outside the system was 48,400.

Notable activities in branch libraries this year included the establishment of a rare book room for the mollusk literature and completion of the renovation of the Entomology Library at the National Museum of Natural History. A new storage area with compact shelving was constructed for portions of the National Museum of American History branch library's collection, including its unique collection of trade catalogues. The Libraries' planning officer has served on the committee designing the master plan for the Institution's Collections Research Center in Suitland, Maryland, is working with the National Museum of Natural History administration to design a rare book library, and is assisting the National Museum of American History administration with plans for the eventual renovation of that museum's branch library.

Collections Management

For several years, SIL has been struggling to meet the rising cost of journals and books, which continues to increase much more rapidly than most other consumer prices. Between 1987 and 1989, academic book prices

rose by as much as 30 percent in such subjects as zoology and history. Subscriptions to foreign journals, which make up about half of SIL's purchased journal collections, will increase by an average of 20 percent in 1991, and subscriptions to U.S. journals will rise by 9 to 12 percent. The Libraries has reviewed its entire list for possible cancellations and placed a moratorium on adding new journal titles. Postal rate increases, the continuing weakness of the dollar, and political changes in Europe all contribute to the problem.

Special Collections was transferred to the Collections Management Division this year, and Chief Librarian Ellen B. Wells assumed the additional responsibility for managing the Libraries' ongoing exhibition program and its new exhibition gallery in the National Museum of American History. SIL's Book Conservation Laboratory monitors the SIL exhibit sites for environmental soundness, and its staff ensures that materials can be safely exhibited. The laboratory staff also repairs and maintains the rare and valuable collections of the Libraries, monitors book storage areas for environmental stability, and salvages materials damaged by water, mold, and insect infestation.

Gifts and Major Acquisitions

In December 1989, SIL received a gift of 186 volumes of books and journals, some trade catalogues, and business files on horticulture from the nursery firm of Lewis and Valentine of Long Island, New York. The firm's former owner, Hewlett W. Lewis, generously donated this collection, which is distinguished by its books on Japanese gardens and practical horticultural topics. Other donors presented the Office of Horticulture branch library with four nineteenth-century trade catalogues; one titled *Maples of Japan*, with color illustrations, is of great research value. The branch library at the Cooper-Hewitt National Museum of Design was awarded \$4,000 by the Women's Committee of the Smithsonian Associates to purchase volume 3 of *Le Garde Meuble*, completing this rare set of nineteenth-century French furniture and drapery designs.

The David Dibner Fund made possible a major purchase for SIL Special Collections, John Collins's *Commercium epistolicum d. Johannis Collins: et aliorum de analysi promota jussa Societatis Regiae in lucum edi-*

tum (London, 1712), an important document in the Newton-Leibnitz controversy over the discovery of the infinitesimal methods of calculus. The purchase adds to the extensive collection of Isaac Newton materials, most of which were collected by Dibner's father, the late Dr. Bern Dibner, and donated to the Institution in 1974 by the Burndy Corporation. James Ross presented the National Museum of African Art branch library with Charles Ratton's *Masques africains* (Paris, 1931), a rare portfolio of plates of African masks.

SIL acquires most of its materials through purchase and through an active gift and exchange program with more than 3,900 partners worldwide. In 1990, the Libraries purchased the Robert D. Mussey, Jr., collection on varnishes and furniture finishes, 70 items ranging in date from 1702 to 1930. The collection, which will support the research and work of furniture conservators, includes many standard nineteenth- and twentieth-century works as well as some rare titles. Also this year, the Smithsonian Regents' Collections Acquisitions Fund supported the purchase of a large portion of a 56,500-item trade catalogue collection once held by the Franklin Institute. The catalogues range in date from the mid-nineteenth to the mid-twentieth centuries and cover a full range of developments in American manufacturing, agriculture, and technology. SIL's Special Collections purchased Levinus Vincent's *Elenchus tabularum, pinacothecarum, atque nonnullorum cineiorum, in gazophylacio Levini Vincent* (1719). A description of the author's private museum with illustrations showing rooms, cabinets, and the layout of specimens in the drawers, it is one of the most beautifully illustrated museum books ever published.

Library Automation

As SIL staff enter bibliographic records into the Libraries' own on-line catalogue, they simultaneously enter them into a national bibliographic utility, the On-line Computer Library Center (OCLC). Some 10,000 libraries are members of OCLC, and all contributing members share the 20 million records for purposes of cataloguing, reference, and interlibrary loan. This year, a project to catalogue the journals and other periodic publications at the STRI branch library was completed, and work continued on a bibliography of scientific

publications on Panama. SIL staff began entering records into OCLC for the Libraries' world-class collection of trade catalogues, now numbering an estimated 234,500 items. Staff of the Original Cataloging and Automated Bibliographic Control units have begun to design cataloguing procedures for maps and for the Brittle Books Program and to provide early notice on OCLC of titles being microfilmed.

Staff also worked on a study to track materials through the system from the time of request through receipt, labeling, and return from a bindery, to locate the materials needed by researchers more efficiently. Cataloguing of rare materials in botany, invertebrate zoology, furniture and design, and the history of technology was completed. SIL cataloguers have consulted by invitation with other Smithsonian bureaus about methods of bringing materials under bibliographic control. A task force reviewed and prepared a detailed report on SIBIS, now in its sixth year of operation, analyzing its capabilities with respect to the anticipated needs of the Libraries and its users and in relation to state-of-the-art systems available to research libraries.



In April, Ellen B. Wells, Smithsonian Institution Libraries special collections chief librarian and exhibition officer, delivered a public lecture titled "*Black Beauty: From Humane Tract to Children's Classic*" for the American Library Association National Library Week "Night of a Thousand Stars." (Photograph by Melissa Johnson)

Public Programs

SIL serves the wider scholarly community and the public through outreach programs that include publications, lectures, and exhibitions. The SIL exhibition "Science and the French Revolutionaries" was part of the Smithsonian's 10th international symposium, "Les Droits de l'Homme and Scientific Progress." The guest curator was Jack R. Censer of George Mason University. SIL cosponsored Censer's public lecture, "Jean Paul Marat," with the Women's National Book Association (Washington chapter) and the District of Columbia Library Association. In April, SIL participated in the American Library Association's National Library Week celebration, "Night of a Thousand Stars," by presenting "*Black Beauty*: From Humane Tract to Children's Classic," a lecture delivered by SIL librarian Ellen B. Wells, coauthor of the recently published and well-received *The Annotated Black Beauty*. From November 1989 to July 1990, SIL exhibited artifacts related to "Library Preservation: Problems and Solutions," featuring examples of brittle books, environmental damage, and alternate formats such as microfilm and videodisc. In September, Carol J. Barton gave an illustrated talk titled "Playful Readings: A History of Children's Movable Books," SIL's public lecture for the Washington Collegium for the Humanities lecture series "The World of the Child." At that time, SIL mounted an exhibition, "Magical Pages," from its collection of pop-up books in the branch library at the Cooper-Hewitt National Museum of Design. The Libraries published *Alchemical Death and Resurrection: The Significance of Alchemy in the Age of Newton*, by B. J. T. Dobbs of Northwestern University, an illustrated lecture based on an Isaac Newton manuscript in the collections and delivered for the 1988 Washington Collegium for the Humanities lecture series titled "Death and the Afterlife in Art and Literature."

With funding from the Smithsonian Foreign Currency Program, SIL administers a translation program; 262 titles have already been published, and 30 more are in various stages of production. This year's publications were *Blood-Sucking Mosquitoes of the Sub-Tribe Culisetina* and *The Role of Scent Glands in Pollination*. The Smithsonian International Exchange Service assists nonprofit institutions in the United States in the distribution of preaddressed educational and research publi-

cations to interested foreign institutions, many in developing countries. The service mailed more than 43,200 packages in 1990.

Libraries Staff

Libraries staff participated in a variety of professional activities this year, presenting papers and talks at meetings and symposia here and abroad, serving as officers and chairing committees of professional organizations, editing and contributing to publications, and planning for the second White House Conference on Libraries and Information Science scheduled for 1991. This year, SIL staff published three books, three articles, one report, and seven reviews in professional journals.

Smithsonian Tropical Research Institute

In the presence of Secretary Adams, members of the Board of Regents, and President Guillermo Endara of Panama, the Smithsonian Tropical Research Institute (STRI) dedicated its new Earl Silas Tupper Research and Conference Center in Panama City in March. The center, with modern offices and state-of-the-art laboratories, represents a major addition to STRI facilities. The following day, STRI inaugurated new housing and a dining room and conference hall on Barro Colorado Island. Also this year, a new Center for Paleoecology was established with the support of the Andrew Mellon Foundation to improve our understanding of past anthropogenic and natural changes in order to set the dynamics of global climatic change in clearer perspective.

These highlights of the year at STRI underline the importance of the institute's mission: to study tropical organisms and communities and their role in the biology of the planet; to train students in tropical research; to increase public awareness of the beauty and importance of tropical nature before it is destroyed; and to promote the conservation of tropical habitats.

STRI offers unparalleled opportunities for tropical biologists. The institute administers the Barro Colorado Nature Monument, where students can draw on 70 years of intense research. The monument includes Barro Colorado Island—3,700 acres of tropical forest declared a reserve in 1923—and nearly 10,000 acres of surrounding mainland forest protected since 1979. STRI's location on the Isthmus of Panama gives scientists access to two oceans with very different biologies only 50 miles apart, separated 3 million years ago by the isthmus, thereby creating a superb "natural experiment" in evolution.

To advance tropical research, STRI maintains a scientific staff of 27, provides financial support for predoctoral and postdoctoral students, and offers living and working facilities for resident staff and visiting researchers. These facilities include marine laboratories on both coasts with equipment for studies in molecular evolution; a field station in the San Blas Islands off Panama's coast; a well-equipped field station on Barro Colorado Island; and a campuslike facility in Panama City consisting of the new Tupper Research and Conference Center, a library, and offices.

The events of late 1989 were a reminder of the risks that can threaten STRI's research efforts. On December 20 at 1 A.M., the United States sent troops into Pan-

ama. During the ensuing disorder, the entire population of the San Blas marine station, including a four-year-old girl, was taken hostage; they were released unharmed 30 hours later. STRI installations were not damaged during the invasion, and no STRI personnel were hurt, although some property was lost. STRI was fortunate to escape so lightly both in December and during the preceding two and a half difficult years. The apolitical nature of the Smithsonian's mission has enabled it to enjoy Panama's goodwill and cooperation for more than four decades.

Research highlights from the past year exemplify the important work in which STRI scientists are engaged.

Distinguishing the Organisms

The most basic step toward understanding the natural world is to learn what organisms inhabit it. D. Ross Robertson of the STRI staff and Gerald Allen of the West Australia Museum are preparing a guide to the fishes of the eastern Pacific from Mexico to the Galapagos. To date, they have photographed live or freshly dead specimens of 550 among the 750 species.

Are the species described by taxonomists actually the interbreeding populations envisaged by evolutionary biologists? Nancy Knowlton of the STRI staff has been studying the molecular genetics and incidence of mutual aggression in *Montastrea annularis*, the best-studied coral in the Caribbean. She has shown that what were thought to be environmental variants of this one species are actually distinct species. Interbreeding experiments on shrimps belonging to the diverse genus *Alpheus* involving populations that supposedly belong to the same species show that these species, too, are not what they seem. In all three "species" studied, Caribbean and Pacific populations are reproductively isolated; in two of these three species, coexisting Caribbean color morphs are also reproductively isolated.

Jeremy B. C. Jackson of the STRI staff and Alan Cheetham of the National Museum of Natural History are extending their genetic studies of bryozoan populations over a wider geographic range to confirm their finding that, among one group of bryozoans, the species described by morphologists are true biological species. If their finding is correct, then the fossil record's testimony is accurate concerning speciation, extinction,

and changes of diversity in this group of bryozoans.

Noris Salazar, who joined the STRI staff this year, is completing a study of the flora of the bryophytes of Barro Colorado Island, and thereby paving the way for the first ecological studies of this important group.

What Organisms Do

Kaoru Kitajima, a STRI predoctoral fellow from the University of Illinois at Urbana-Champaign, has just completed a study of how plants of different species allocate seed resources among height growth, leafmaking, and energy storage as seedlings germinate and become established. Seedlings from large seeds are more likely to use their seed-leaves primarily as storage organs, which enable these seedlings to survive in the shade until a tree overhead dies and allows abundant light to reach them. Some large-seeded species, however, use

their seed reserves to produce fast-growing seedlings designed to grow above their competition in well-lit gaps.

To address the question of how fast butterflies fly, Robert Srygley of the University of Texas and Robert Dudley, a STRI three-year postdoctoral fellow, have measured flight speeds in the wild for more than 100 butterflies representing 25 species. They followed each butterfly over Gatun Lake in a motorboat, measuring the insect's air speed with an anemometer. After capturing the butterfly and taking its temperature, they assessed thermoregulation from the way body temperature depends on flight speed and weather conditions. Butterflies that birds find tastier fly faster. Some of these butterflies were migratory; their measurements will help in estimating the energetic costs of migration. Dudley has also visited Wau, New Guinea, to study the flight mechanics of birdwings, the largest butterflies in the world.



Children from the El Chorillo refugee camp examine a live sea urchin during their visit to the Naos Marine Laboratories. The Smithsonian Tropical Research Institute organized an educational program for nine groups of children whose homes were destroyed during the December invasion. (Photograph by Marcos Guerra)

This year, Alan Smith of the STRI staff finished a nine-year study of understory rosette herbs of the genera *Calathea* and *Pleiostachya* on Barro Colorado Island. Both must be lit by gaps in the canopy overhead in order to reproduce. In deep shade, *Pleiostachya* dies more quickly, but it leaves dormant seeds in the soil that sprout when light becomes available. In the shade, *Calathea* plants shrink, but they usually survive until a new gap opens overhead. They depend more on vegetative reproduction than on seeds.

To find out how a plant's physiology changes as it grows from a seedling to a canopy species, Alan Smith is seeking access, with the help of a tower crane, to the crowns of several tree species. During the year, he began a trial run with a rented crane in Panama City's Metropolitan Nature Park. Since most of the exchange of gases between the forest and the atmosphere takes place in the forest canopy, access to the canopy via the tower crane may greatly expand scientists' understanding of tropical forests.

Interdependence

The role of insects in tropical forests is one of the least-explored frontiers in tropical biology. Plants in tropical forests depend on pollinators in order to outbreed; wind is too indiscriminate a vector. An important question is how much it costs the plants to maintain their pollinators. Bees are among the principal plant pollinators. David Roubik of the STRI staff finds that Barro Colorado Island has 200 to 300 species of bees. The island averages six nests totaling 145,000 highly social bees and their brood and 75,000 solitary bees and their brood per hectare (a hectare is about 2.5 acres). Plant resins are used for nest building. The energy of nectar and pollen and of plant resins used by bees on a hectare amounts to one-third or one-half of the energy a forest loses to leaf-eaters and 4 percent of the energy content of a forest's leaf production. Roubik's research has yielded one of the first estimates of the numbers and the energy consumption of a guild of tropical insects.

Pierre-Michel Forget, a STRI postdoctoral fellow, is studying the role of agoutis, eight-pound rodents resembling the miniature forest antelopes of West Africa, in tree reproduction. Agoutis bury seeds, "scatterboard-

ing" them over their territories against future food shortage. The probability that a seed of wild nutmeg, *Virola surinamensis*, survives to become a six-week-old seedling increases 44-fold if a toucan or a monkey disperses it well away from the parent tree. Forget finds, however, that weevils destroy the dispersed seeds that agoutis do not bury. *Virola* seeds are dispersed when fruit is abundant, a time when agoutis need not venture far from the centers of their territories. Thus the *Virola* seeds that are dispersed to the center of an agouti's territory are much more likely to be buried and to become established seedlings. Similarly, seeds of the canopy tree *Dipteryx panamensis* apparently must be both dispersed by bats and buried by agoutis in order to become established seedlings. *Dipteryx* seeds, however, fall near the end of the season of fruit shortage, when agoutis, which relish them, are searching everywhere for food. The *Dipteryx* seeds that are most likely to succeed are those that fall latest and are buried at the edge of an agouti territory whose interior holds other kinds of trees that are beginning to drop desirable fruit. Thus agoutis may enforce a habitat segregation between *Dipteryx* and *Virola* seedlings by favoring *Virola* at the centers and *Dipteryx* at the edges of their territories.

Forest Dynamics and Tree Diversity

To find out why there are so many kinds of tropical trees and what factors influence forest diversity, Stephen P. Hubbell, now of Princeton University, and STRI scientist Robin Foster arranged for the mapping and tagging between 1980 and 1982 of every stem one centimeter or more in diameter at breast height (DBH) on a 125-acre plot of old forest on Barro Colorado Island. In 1985, the plot was recensused, new stems were mapped, and growth and mortality recorded in old ones; this census recorded the abnormally high mortality imposed by the El Niño dry season of 1985. Foster is currently supervising the third census, which may reveal the dynamics of Barro Colorado's forest under less extreme climatic conditions.

In Peru's Parque Nacional Manu, Foster has been assessing how seed dispersal may contribute to plant diversity. How do plants with "explosively dispersed" seeds—seeds that are flung into the air when their cap-

sule bursts open and that do not travel far—compare in their contribution to forest diversity with plants whose seeds are dispersed by animals or wind and that usually travel much further? Foster censused several sites, each consisting of 100 stems over 1 centimeter DBH, on dry slopes of hills or old terraces near the Manu River. On the average, 50 of the 100 stems, representing 11 species, were plants that disperse their seeds explosively. The remaining 50 stems, representing 44 species, were plants that disperse their seeds by other means.

In Manu Park, explosively dispersed species are concentrated in three families: *Rutaceae* (citrus), *Euphorbiaceae* (spurge), and *Violaceae* (violet). These three families dominate the forest understory on dry ridges but are also abundant on old landslides and alluvial fans, as if their seeds were lying dormant in the soil when it moved down from the ridges. This situation may suggest that plants living on such poor soils may use chemical defenses more than dispersal to escape from herbivores.

Sexual Selection

Darwin thought that speciation often reflects the accidental divergence of sexual selection in isolated populations, causing members of each population not to recognize the others' members as suitable mates. The criteria by which females prefer some males over others as mates—which differ in different populations—play an essential role in driving sexual selection.

How do females choose their mates? Do their criteria favor "better" males? Calls of the Panamanian frog, *Physalaemus pustulosus*, include a "whine" and, if other males are calling, one or more "chucks," which enhance the calls' attractiveness to females. With Walter Wilczynski of the University of Texas, Stanley Rand of the STRI staff is trying to discover what aspects of the whine are needed to attract females. Synthesized calls omitting the first, middle, or last third of the whine are as attractive to females as "whole" whines.

In Ecuador, the calls of *Physalaemus coloradorum* males lack chucks. Reversing an earlier conclusion, Rand and Michael Ryan of the University of Texas have discovered that synthesized calls with *pustulosus* chucks adjoined to *coloradorum* whines attract *colora-*



Smithsonian Tropical Research Institute scientist Dr. John Christy uses a video camera to track mating behavior of fiddler crabs. His assistant Todd Underwood uses a blow gun to mark each burrow the receptive female enters while collaborator Dr. Ursula Shober makes observations. (Photograph by Carl Hansen)

dorum females more effectively than normal *coloradorum* whines.

STRI biologist John Christy has been studying how female fiddler crabs, *Uca beebei*, choose mates. He finds that females visit and reject several males' burrows before choosing a mate. Yet detailed study suggests that they do not choose a male by its burrow. This finding overturns an earlier conclusion that they choose to mate with males possessing larger or deeper burrows. Christy thinks that the females are influenced primarily by courtship inside the burrows.

In Costa Rica, STRI biologist William Eberhard is comparing the courtship and mating behavior of three

species of rose-chaffer beetles. Two of these coexist on many species of plants; all three coexist on some. The mating behaviors of these three species are all different. Did they diverge to ensure that beetles mate only with members of their own species, or are these differences the accidental outcome of divergence under sexual selection? Their copulation behavior is complex, and some pairings last several days. Males rarely mount females of the wrong species. In at least two of these three species, however, males often abandon copulations with females of their species less than two minutes after mounting, long before they could have transferred sperm. Aborted matings with females of the same species are 10 to 100 times more common than attempts to mate with females of different species, suggesting that the driving force in the evolution of these beetles' mating behavior is sexual selection by female choice.

Most bluehead wrasses (a Caribbean coral reef fish) are born female and transform into "gaudy" males when large enough to attract females and defend territories against other males. Large patch reefs also have "drab" males, blueheads that are born male but retain female coloration until big enough to play the role of gaudy males. Females prefer to mate with gaudy males, but on large patch reefs only a few gaudies can coexist, and females often have to wait for matings, allowing drab males to reproduce as successfully as females by "alternative" mating strategies that do not require large size and social dominance. Fertilized eggs from reefs of all sizes, however, develop into fish larvae in the plankton where they are all mixed together. To learn how a patch reef receives its appropriate complement of drab males, D. Ross Robertson of the STRI staff has been rearing bluehead larvae derived from reefs of different sizes, in groups of different sizes.

Speciation and Evolutionary Divergence

How do new species form, and what leads a species to divide into two reproductively isolated populations? STRI scientist Nancy Knowlton studied what was supposedly a single species of alpheid shrimp that lives on anemones: the shrimp and its host anemone help defend each other. This shrimp "species" actually includes four noninterbreeding "sibling species," three of

which live on one species of anemone. One of the four noninterbreeding populations that make up this species lives on a species of anemone different from the one used by the other three. This population has very little genetic variation, as if it descended from a very few founders who "accidentally" colonized a different species of anemone and whose descendants stuck with it.

Three million years ago, the Isthmus of Panama simultaneously divided many marine populations into geminate pairs, allowing a test of the "molecular clock." Eldredge Bermingham and Haris Lessios of the STRI staff found that among three geminate pairs of sea urchins, levels of protein divergence vary 20-fold, with *Diadema* diverging least and *Echinometra* most. The degree of divergence in the DNA of mitochondria from populations on the two sides of the isthmus, on the other hand, are very similar for the three pairs, with *Diadema* diverging least—5 percent—and *Eucidaris* most—7.5 percent. For several geminate pairs of fish, including two pairs of sergeant-major (such as *Abudefduf*, a pair of snappers, *Lutjanus*, or a pair of *Chromis*) Bermingham finds that divergence in mitochondrial DNA ranges from 4 to 6 percent. Timothy Collins, a STRI postdoctoral fellow, had found that among geminate pairs of the marine snails *Vasum*, *Placopurpura*, and *Thais*, mitochondrial DNA divergence ranges from 8 to 12 percent.

Collins compared the DNA sequences of a 300-base-pair length from the gene for cytochrome B from geminate populations of species split by the isthmus. Geminate populations of *Diadema* differ at 38 base pairs, the two pairs of *Abudefduf* differ at 4 and 13, respectively, two pairs of porkfish, *Anisotremus*, differ at 4 and 9, respectively. These differences are far greater than chance can account for. However, longer sequences might offer a more reliable molecular clock; that is, the number of base pairs in which longer sequences differ may be more nearly proportional to the time since their population diverged.

Coevolution

Each species of fig tree has its own species of wasp as pollinator, whose life cycle is bound to that of the fig. In turn, the wasps carry parasitic nematodes. One interesting question is, have the wasps and nematodes

speciated in step with the figs, or have wasps or nematodes of one host species occasionally invaded and taken over another? Allen Herre, a STRI postdoctoral fellow, is comparing the phylogenies of figs, their wasps, and the wasps' nematodes. He is inferring the evolutionary trees of figs and wasps from sequenced fragments of mitochondrial DNA and fig phylogenies from chloroplast DNA. If, as is probable, the phylogenies of figs, wasps, and nematodes coincide, Herre will test the "molecular clock." Is genetic divergence between a pair of figs proportional to that between their wasps and to that between the wasps' nematodes? Does the molecular clock tick in years or in generations, elapsed since speciation? Generation times of wasps and their nematodes are identical, while fig trees have vastly longer generations. Herre will try to answer this question.

Alternatives to Deforestation

Pacas are large (25-pound) forest rodents that are considered the best-tasting game animal in Panama. STRI biologist Nicholas Smythe has succeeded in domesticating this species so that they can live amicably in social groups. He is now distributing groups of tame, easily handled pacas to Panamanian farmers so that they can start breeding them for market. Some of these pacas have already started breeding for their new owners.

In October 1984, STRI scientist Gilberto Ocaña arranged the planting of a forest garden of *Acacia mangium* trees, interplanted with various root crops, in degraded pastureland near Gatun Lake. He sought to demonstrate a profitable, ecologically sound way of farming a plot on a sustainable basis, avoiding the need to shift to new land when the soil wears out. Beginning in December 1988, eight goats were acquired, stabled, and fed with leaves from this forest garden. Twenty months later, they had become 24. The oldest are now past their peak, and others are too young to attain full yield, but eight have attained the weight gain, breeding rate, and milk production reported from the Centro Agrónomico Tropical de Investigación y Enseñanza in Turrialba, Costa Rica, after long-term experimentation. Extensions of this experiment are being planned in close collaboration with six Panamanian government

institutions concerned with conservation and with the restoration of degraded lands.

Outreach

To mark the inauguration of the Tupper Center, STRI opened the exhibition "Parting the Green Curtain: The Evolution of Tropical Biology." With the aid of volunteer docents, the Education Office has guided visits for organized school groups to the exhibition and to the center. In August, STRI hosted its first international symposium in the Tupper Conference Center. Supported by the Social Science Research Council and the Smithsonian as part of its Quincentenary Program, the conference brought together more than 40 international specialists interested in cultural systems and environments in the lands visited by Christopher Columbus on his four voyages to the New World.

The Spanish edition of *Ecology of a Tropical Forest* was published this year. This book, which demonstrated the fundamental role of the seasonal and annual variation of fruit and leaf production in maintaining the "balance of nature" in tropical forests, will now be accessible to Spanish-speaking readers in Latin America. Published with support from the Smithsonian's Atherton Seidell Fund, the Spanish version includes 2 new articles and 10 articles that were updated or revised.

Elena Lombardo was appointed assistant director in charge of the new office of external affairs, which will work to expand STRI's international activities. Because of STRI's recent expansion, a new Visitors Services Office to assist visiting researchers was established at the Tupper Center under the direction of Gloria Maggiori.

STRI continued to support international and local conservation efforts. The depressed local economic situation increased poaching in the Barro Colorado Nature Monument and other parks and reserves. To supervise the protection of the monument and security of all facilities, the Office of Protection Services appointed Alejandro Arze as STRI's first security officer.

Eric Fischer, deputy director since 1988, announced his resignation to become vice-president for science and sanctuaries of the National Audubon Society.

MUSEUMS

Tom L. Freudenheim, Assistant Secretary for Museums

The development of an Experimental Gallery and the creation of a new African American initiative were the highlights of the year for the Office of the Assistant Secretary for Museums.

The Experimental Gallery, which will open in the Arts and Industries Building in January 1991, will offer opportunities for exploring exhibition technique and style, audience and access, and the exhibition development process and exhibition context. In a workshop setting, Smithsonian museum staff will be able to experiment with exhibition components and revise them before they are installed in fully realized exhibitions. They will also be able to reinstall successful exhibition experiments and mount original experiments developed by museums within and outside the Smithsonian. Although the gallery will eventually cover many subjects, its initial emphasis is multicultural exhibitions in the arts, humanities, and sciences and interactive exhibitions in the physical and natural sciences. Directed by Kimberly Camp, the Experimental Gallery was initially funded by the Cafritz and Rockefeller foundations and recently received a major grant from the Pew Charitable Trusts.

African American initiatives at the Smithsonian have been of wide interest in recent years. In the past, individual museums have developed their own collections and research interests in this area, but the growing public interest in African American history and culture has prompted the Institution to take a closer look at its programming.

In late 1989, the Smithsonian appointed Claudine K. Brown interim director of a new project that will examine the form and content of an African American presence on the National Mall. A 22-member committee is working to identify and review the options, which include a new museum, a research center, and a trust for existing African American museums throughout the nation. The options will be studied and discussed and a recommendation will be presented in early 1991.

The Assistant Secretary for Museums administers two internal grant programs, the Special Exhibition Fund and the Collections Acquisition Program. Both programs receive annual trust fund allotments from the Board of Regents. For the first time this year, these and other funds affecting research, fellowships, and educa-

tional outreach were cut significantly from projected levels because of overall institutional budget cuts.

The Special Exhibition Fund was established to support exhibitions at the Smithsonian resulting from scholarly research in any areas represented throughout the Institution. In recent years, the purpose was broadened to supplement federal appropriations for permanent and temporary exhibitions and to encourage experimentation in communicating with the broadest possible range of visitors. This year, 22 awards were given for upcoming exhibitions including "Global Image: The Process of Mapping" at the Cooper-Hewitt National Museum of Design, "Chicano Art: Resistance and Affirmation" at the National Museum of American Art, "Court Arts of Indonesia" at the Arthur M. Sackler Gallery, "Principles of Flight" at the National Air and Space Museum, and "Good, Bad, and Cuddly" at the National Zoological Park. Funding was also made available for several exhibitions related to the Columbus Quincentenary commemoration in 1992.

The Collections Acquisition Program disbursed more than \$1.7 million this year for more than 20 requests. Among the major acquisitions were *Trial of Red Jacket* by John Mix Stanley, by the National Museum of American Art; a South Carolina Revolutionary War flag, a joint purchase by the National Museum of American History and the state of South Carolina; the José Duret Mosquito Collection and a Guatemalan Mayan costume collection, by the National Museum of Natural History; and a photographic atlas of the Northern Sky, by the Smithsonian Astrophysical Observatory.

In July, the Office of Institutional Studies (OIS) joined the program of the Assistant Secretary for Museums. The OIS conducts studies and evaluations of exhibitions, programs, and operations throughout the Smithsonian.

Anacostia Museum

During the Anacostia Museum's 23-year history, it has grown from an experiential hands-on museum to an influential museum of African American history and culture. As the museum enters the 1990s, it continues to review, consolidate, and strengthen its focus while beginning to plan for further development at the possible site of Poplar Point in Anacostia. To this end, the museum is conducting a series of roundtable discussions on its relationship to the community and its exhibition, education, and research programs. The museum has a revised mission statement and looks forward to completing the review of its collections management policy and beginning a collection program.

The Anacostia Museum's mission is stated as follows: "The museum will continue to serve as a national resource for exhibitions, scholarly and applied research, historical documentation, and interpretive and educational programs relating to African American history and culture.

"The museum will continue to look to new ways to forge strong ties with the communities it serves and explore urban issues which affect everyday lives."

Exhibitions

The summer exhibition "Whose Art Is It, Anyway? The Arts in Public Places" explored the processes and issues surrounding the arts found in public places, including sculpture, murals, dance, song, and artistic clothing and hair styles. This year also marked the extension of the highly successful major exhibition "The Real McCoy: African American Invention and Innovation 1619-1930." In anticipation of the District of Columbia bicentennial celebration in 1991, historian Edward Smith is conducting research for an exhibition on the 200-year struggle by African Americans to secure equal rights in the nation's capital. "To Achieve These Rights" will open in October 1991.

Public Programs

The Education Department developed a full range of programs to support "The Real McCoy," including "Inventor for a Day," seminars by experts on the process of securing patents. The African American holiday



Children participate in the opening activities for the Anacostia Museum exhibition "Whose Art Is It Anyway? The Arts in Public Places." (Photograph by Richard Strauss)

Kwanzaa was celebrated during December with drumming and dancing, lectures, storytelling, and a family workshop. The department also conducted its annual Black History Month Planning Clinic and offered a course to area teachers for academic credit, "African American Visual Arts in Washington, D.C." The summer science camp utilized the new George Washington Carver Nature Trail in the wooded area surrounding

Archives of American Art



In 1990, the Smithsonian Institution Traveling Exhibition Service reconfigured "The Real McCoy: African American Invention and Innovation, 1619-1930," organized by the Anacostia Museum, for national travel. This installation photograph shows a model of inventor Lewis Latimer at his drafting table. (Photograph by Harold Dorwin)

the museum to teach urban children environmental science, as well as African American history and culture. A continuing program is the Friends for the Preservation of Afro-American Culture, which holds discussions of collecting issues.

New initiatives this year included the establishment of the museum's first gift shop; publication in spring 1990 of the first Anacostia Museum newsletter; scripting and design for a small traveling exhibition, "The Renaissance: Black Arts of the Twenties"; and production of the museum's first interactive video, "Are You an Inventor?" As the fiscal year came to a close, the museum launched a project to observe the Columbus Quincentenary that will include programs and an exhibition exploring the different African American communities in the Washington, D.C., metropolitan area.

The Archives of American Art, a national research bureau of the Smithsonian Institution, is dedicated to encouraging the study of American art and cultural history. During fiscal 1990, the Archives focused particular energy on preparing for increased access to its collections, which number more than 10 million items, and on enhancing its services to researchers.

The conversion of the Archives' manual catalogue to an automated data base was a major project this year. During the conversion, the information available in each catalogue entry was refined, verified, and increased. A related activity was the entry of condition, location, and accession data that give the Archives increased control of its collections. The research portion of the automated data base, now nearing completion, will be entered next year into the Research Libraries Information Network and make the Archives catalogue available to researchers in libraries all over the country.

Concurrently, the Archives began to review and update its reference services and its lending policies and procedures in preparation for serving a larger and more active national constituency. It also initiated an outreach program to midwestern colleges and universities, presenting Archives programs and services to students, instructors, and librarians.



Richard Manney (left), co-chairman of the Archives of American Art tribute to Richard A. Manoogian, long-time trustee, poses with Mr. and Mrs. Manoogian and Mrs. Manney prior to the Archives benefit dinner in New York's Metropolitan Club. (Photograph by Steven Tucker)

Arthur M. Sackler Gallery

Collections

More than 121 collections containing some 275,000 items were acquired during this fiscal year. In addition, the Archives borrowed another 28 collections for microfilming. Among materials received were the papers of ceramist and teacher Frans R. Wildenhain and sculptor Dimitri Hadzi, as well as those of Edmund C. Tarbell, painter and former director of the Corcoran School of Art in Washington, D.C. A select group of Winslow Homer letters was acquired, as were the papers of African American sculptor James W. Washington and California painter Francis de Erdely.

The Archives conducted 37 oral history interviews and acquired another 93 interviews through gifts. Among the most significant are interviews with Faith Ringgold, Joel Shapiro, Duane Hanson, Miriam Schapiro, Ellsworth Kelly, Sam Gilliam, Carlos Villa, Masami Teraoka, and Agnes Martin.

Public Programs

The Archives sponsored two major symposia this year: one in San Francisco titled “Art, Politics, and Democracy” and one in Detroit titled “Roses, Too: Sixty Years of Labor Art Programs.” An Archives guide to “Art-Related Archival Materials in the Philadelphia Region” was published, a product of the first part (1984–89) of the Philadelphia Documentation Project, a collecting and microfilming project. Booklets on the Walter Pach Papers and the Niles Spencer Papers were published to accompany exhibitions in the Archives gallery at the Equitable Center in New York. The latter exhibition was a joint effort with the Whitney Museum of American Art, which organized a retrospective showing of Spencer’s work.

Staff

Richard J. Wattenmaker joined the Archives staff as national director in September. Susan Hamilton served as acting director during the year.

The Arthur M. Sackler Gallery, like the neighboring Freer Gallery of Art, is a national museum of Asian arts at the Smithsonian, and the two museums share a single staff. This year, the three-year-old Sackler Gallery continued to expand its holdings through purchase and gift, particularly in the twentieth-century arts of Asia—from Japanese ceramics and Chinese painting to the folk arts of India. The museum also added a large group of photographs by Raghubir Singh in connection with its exhibition of Singh’s work.

Exhibitions

The year opened with “The Noble Path: Buddhist Art from South Asia and Tibet,” an exhibition of sculptures, paintings, and ritual objects from the collections of the Los Angeles County Museum of Art that range in date from the first century B.C. to the eighteenth century. The series of free public education programs accompanying the exhibition included weekly presentations by Buddhist monks from Washington-area temples; films and videos on contemporary Buddhist beliefs, teachings, and practices; and lectures on Buddhist history, pilgrimage sites, and architecture. With funding from the *Washington Post*, the museum bused 900 area schoolchildren to the exhibition.

“Yokohama: Prints from Nineteenth-Century Japan,” the museum’s first exhibition of Japanese art, featured 85 color woodblock prints depicting the city of Yokohama, its burgeoning trade industry, and the Japanese view of the first foreign residents after 250 years of national seclusion. Prints in the exhibition were lent from the collection of William and Florence Leonhart of Washington, D.C., with the participation of the Daval Foundation. The exhibition was made possible by the Yamanouchi Pharmaceutical Co., Ltd. A full-color catalogue by exhibition organizer Ann Yonemura, assistant curator of Japanese art, complemented the exhibition.

Research and Publications

Museum scholars received grants for research and exhibition projects in each of the museum’s geographic specialties. Senior research scholar Thomas Lawton organ-



This detail of the painting *Red Plum Blossoms* is from a handscroll by the Chinese painter of the Ming dynasty Yao Shou (1423–1495). The scroll was transferred to the Sackler Gallery from the collections of the National Museum of Natural History.

ized a symposium titled “New Perspectives on Chu Culture during the Eastern Zhou Period,” which featured lectures by four internationally known scholars. Distinguished collector Paul Singer lent some choice works for a small concurrent exhibition, “The Art of the Chu.” The symposium was made possible through the generosity of Mrs. Arthur M. Sackler.

Louise Cort, assistant curator for ceramics, completed a year’s leave of absence studying ancient kilns, historical sites, and contemporary ceramic production in northeast Thailand, Laos, and southwest China.

A workshop titled “The Construction of the Ancient Near East” was organized by Ann Gunter, assistant curator of ancient Near Eastern art, and Mogens Trolle Larsen, director of the Center for Research in the Humanities, Copenhagen University. Thirteen scholars from universities and museums in North America, Europe, and Great Britain presented papers on the history of the field of ancient Near Eastern studies; these papers will be published in a forthcoming volume. The workshop was funded through the Smithsonian’s Office of Fellowships and Grants.

The reference library, which is open to the public without appointment, responded to 5,230 requests for materials and information, an increase of 45 percent from 1989. The library expanded its collection by 2,666 volumes; the preponderance of acquisitions consisted of material on South and Southeast Asian art and archaeology and on the Japanese and Chinese languages.

Public Education and Outreach

Museum staff directed their efforts at evaluating new audience needs. The Sackler Gallery Accessibility Council, founded in 1987 and chaired by Sarah Ridley, met with specialists throughout the year who suggested ways for the museum’s programs and activities to serve visitors with disabilities. Council members review each new exhibition from the perspective of such visitors, and many of their comments have been incorporated into the design of subsequent exhibitions. In several galleries, for example, walls have been repainted and labels rescreened to increase readability.

Conservation Analytical Laboratory

The museum mailed its bimonthly Sackler Gallery *Calendar* to some 15,000 subscribers. Thanks in large part to a generous donation from Mrs. Else Sackler, the museum redesigned and enlarged the calendar to include more information on exhibitions and programs.

Staff Changes

To better reflect the breadth of the Freer and Sackler collections, two new scholarly posts were added. Carol Bolon was named assistant curator of South and Southeast Asian art, and Jenny So became associate curator of ancient Chinese art. In recognition of the growing need for financial support for exhibitions, research, and public programs, the Sackler and Freer galleries added a Development Office headed by Laurel Muro, formerly of Seattle University.

The Conservation Analytical Laboratory (CAL) conducts technical and scientific research on museum objects and related materials for the purposes of improving the preservation of Smithsonian museum collections and gaining a fuller understanding of their historical context. CAL's training program offers unique educational opportunities for students in conservation, materials science, archaeology, and art history. This year saw progress in existing research programs and the initiation of several new efforts. The training program also had a successful year, with the graduation of the first class in the Furniture Conservation Training Program.

Archaeometry

Physical and natural scientists conducting archaeometric research at CAL collaborate with scholars from the arts and the humanities to address questions pertaining to archaeology or art history by technical means. Some of these studies require highly specialized technical facilities, which CAL operates at the National Institute for Standards and Technology in Gaithersburg, Maryland, under collaborative agreements with that organization (formerly the National Bureau of Standards).

This year, CAL completed the installation of a dedicated laboratory for its biogeochemistry program, in which scientists study minute amounts of proteins extracted from calcified tissues from paleontological or archaeological skeletal material. CAL scientists succeeded in isolating immunoglobulins and DNA from ancient bone, opening the way to studies that may reveal exposures to specific diseases, as well as genetic information from skeletal material.

The technical studies of paintings by Albert Pinkham Ryder, a program conducted in collaboration with staff of the National Museum of American Art (NMAA), culminated in the preparation of a special technical section for a major exhibition of Ryder's works that opened at NMAA in April. Also in collaboration with the NMAA staff, CAL researchers organized a special symposium, "Technical Studies in American Painting," which attracted more than 200 scholars from across the country.

Conservation Research

In this CAL program, researchers, typically working in teams of scientists and conservators, identify and characterize the chemical and physical processes involved in the deterioration of museum objects or develop and evaluate treatment technology for unstable objects.

CAL's project on the evaluation of the risks of art in transit, performed in collaboration with the Canadian Conservation Institute and the National Gallery of Art, made great progress. CAL researchers are now able, for example, to produce reliable predictions of the effects of shocks, vibrations, and changes in environmental conditions on a given painting.

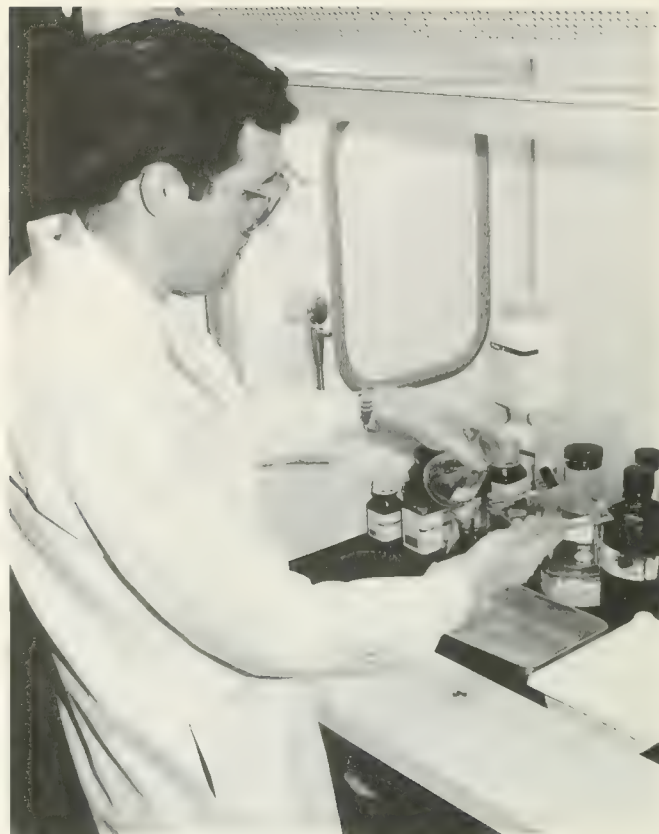
In a multiyear project, CAL researchers studied the effects that the solvents used for the removal of deteriorated varnish from oil paintings may have on the underlying paint layers. The researchers have made a number of unexpected observations, including the occurrence of mechanical stresses induced by the fast cooling of the paint layers due to evaporation of the solvents.

CAL initiated new pilot projects to study the deterioration of modern synthetic materials, such as the elastomers used in the fabrication of spacesuits on exhibit at the National Air and Space Museum and the effects of commonly used liquid storage media on the preservation of molecular information in natural history specimens.

In keeping with CAL's intention to expand its programs in archaeological conservation, a staff conservator collaborated with archaeologists involved in the excavations of a classical period Mayan site at Joya de Ceren, El Salvador. She assisted in the excavation and lifting of the severely deteriorated remains of a rare Mayan codex, which then were brought to the CAL facilities for further technical study and, if possible, partial recovery.

Training

The major event of the year was the graduation of the six students in the first class of the Furniture Conservation Training Program. These students, as well as several members of the second class, which finished its



Photographic materials research scientist Mark McCormick-Goodhart pours collodion onto a glass plate in the re-creation of a historic photographic process at the Conservation Analytical Laboratory. (Photograph by Doc Dougherty)

first year of course work, have already found employment in major museum conservation departments.

CAL organized eight advanced courses for practicing conservators on such topics as on-site archaeological conservation techniques, use of the suction table in paper conservation, color theory and measurement, display materials, mechanical properties of materials and objects, and analysis of historic textile dyes. CAL conservators and scientists also taught specialized courses in the joint CAL-Johns Hopkins University graduate program in conservation science and supervised the research performed by students in this program as part of their degree requirements. Interns at various levels of training and experience worked under the guidance of CAL specialists.

In collaboration with the United States Information Agency and the Latin American Scholarship Program of American Universities, CAL organized a week-long seminar for Latin American Fulbright Fellows studying in archaeological programs at U.S. academic institutions. The seminar addressed issues concerning the application of scientific analytical methodologies in archaeological research.

Cooper-Hewitt National Museum of Design

Encouraging good design and fostering an improved understanding of the design process, raising the level of discussion in related fields, and improving the dialogue between audience and designer are the goals of the Cooper-Hewitt National Museum of Design. The museum pursues these goals through a variety of programs, including provisions for making the collections available for study, research, and display; educational programs; exhibitions; publications; and conferences keyed to significant design issues.

Two of the museum's major concerns this year were developing methods to educate visitors, particularly children, about design and improving the museum's accessibility to a diverse audience. These concerns are now emphasized in planning the museum's exhibitions and educational programs.

Exhibitions and Programs

Design and its varying forms of expression defined the scope of the museum's principal exhibitions in fiscal

1990. Alexander Calder's unique creations of teacups, toys, and jewelry were featured in "The Intimate World of Alexander Calder." "Flora Danica and the Heritage of Danish Porcelain" surveyed the forms, techniques, and decoration of Danish porcelain. In the major exhibition "Color, Light, Surface: Contemporary Fabrics," the museum presented fabrics manufactured in the United States, Europe, and Asia. Architects' and designers' whimsical visions for doghouses were shown in "The Doghouse."

For each exhibition, particular emphasis was placed on providing cogent, imaginative, and accessible educational programming. In the museum's first experiment with education for children in many years, classes for schoolchildren were created for the Calder exhibition using an artist-educator for classroom and gallery visits. A study funded by the New York State Council on the Arts has enabled the museum to work with education professionals with the goal of establishing a full Education Department to supplement the successful Public Programs Department.

The museum's dedication to serving a diverse public

A blind visitor reads braille labels accompanying "The Doghouse" exhibition at the Cooper-Hewitt Museum. The museum encouraged those with a sight impairment to bring their guide dogs to the exhibition.



is now integrated into its exhibitions and programs. The exhibition "The Doghouse" not only showcased unique and innovative structures but highlighted the museum's desire to make its building and exhibitions accessible to a wider audience. In collaboration with Guiding Eyes for the Blind, Inc., a local guide-dog school, the museum made the exhibition physically accessible to the blind and visually impaired, a population not usually served by a visual arts museum. Assisted by experts on blindness, the museum has begun to assert a new awareness of the needs of special audiences who may never have considered the value of a design museum to their lives. Exhibitions at Cooper-Hewitt now feature some works that can be touched, as well as large-print and braille descriptive labels or brochures and tours designed for special audiences. For the exhibition "Color, Light, Surface: Contemporary Fabrics," for example, manufacturers supplied fabric samples for the public to touch. In addition, plans are well under way to make the historic Andrew Carnegie Mansion more physically accessible to disabled visitors.

The museum continues striving to attract a more culturally diverse audience that mirrors the population of New York City and the United States. To this end, the museum has made serious efforts to work with the Hispanic communities of New York to create programs such as "Nueva York Tropical," a successful summer lecture and concert series attended by more than 1,000 people. These programs continue to draw new and more diverse constituencies to Cooper-Hewitt as it works to fulfill its purpose as the National Museum of Design.

The Freer Gallery of Art was closed for a second year in a multimillion-dollar project to expand and improve space for art conservation, research, collection storage, and visitor facilities. The project is the first complete refurbishment in the Freer's nearly 70-year history. When possible, the Freer Gallery staff has arranged access for members of the public who need to study or conduct research on the museum's world-renowned collections of Asian and nineteenth- and early twentieth-century American art.

Major work was completed this year on the central courtyard, which provides abundant natural light and a pleasant backdrop to the Freer's corridors and galleries. The Freer requires space to house its growing art collection safely, and the area beneath the courtyard proved indispensable for this purpose. Miniature earth-moving equipment carved out earth up to 22 feet below ground. A crane lifted the soil over the Freer, and a conveyor belt carried it through the building. The resulting space will provide for storage and study of Asian ceramics, furniture, textiles, and sculpture. Above the new facility, the courtyard will be reinstalled according to the original architect's design.

Other important aspects of the project are well under way. Among them are construction of an exhibition space linking the Freer with the neighboring Sackler Gallery and expansion of space for the art conservation laboratory, which will include studios specializing in Japanese and Chinese painting restoration. A new elevator linking all three public levels will improve access to the museum, especially for visitors with mobility impairments.

As the architectural work proceeded, a two-year research and conservation effort to restore "Harmony in Blue and Gold: The Peacock Room" began in November with \$150,000 in matching funds from the Getty Grant Program of the J. Paul Getty Trust and \$50,000 from the James Smithson Society. The Peacock Room, an icon of the Freer collection, is the only surviving interior design scheme by American expatriate artist James McNeill Whistler. Generally acknowledged to be the most important nineteenth-century interior in an American museum, the room is permanently installed as one of the Freer's exhibition galleries. A team of painting conservators from the University of Delaware/Winterthur Art Conservation Program is carrying out



Conservator Wendy Samet (left) takes paint samples from the north shutter in the Peacock Room, which is undergoing major conservation in the Freer Gallery of Art. Conservation intern Nancy Pollak is making a record of each sample as it is removed. (Photograph by John Tsantes)

the renovation in association with the Freer's curatorial and conservation departments.

Research and Public Education

Research was initiated and completed for a multidisciplinary project to compare the Freer and Sackler galleries' ancient Iranian metalwork with similar pieces from institutions in North America, Japan, Great Britain, Europe, and the Soviet Union. A Smithsonian Scholarly Studies grant was instrumental to this project. Ann Gunter, assistant curator of ancient Near Eastern art, was the principal investigator for the research team, which also included W. Thomas Chase and Paul Jett, head and senior conservator of conservation and scientific research, respectively. Pieter Meyers, head of conservation, Los Angeles County Museum of Art, served as consultant. A detailed catalogue of the ancient Iranian metalwork in the Freer and Sackler collections is planned for publication in 1992.

Acquisitions

Among the exceptional additions to the collection this year were a hanging scroll of calligraphy by the Chinese Emperor Ch'ien-lung (reigned 1736–95), which was a gift from Mrs. John A. Pope, and a silver rosewater bottle made in India around 1700. Other acquisitions included a necklace and two pairs of ear ornaments, outstanding examples of nineteenth-century Indian gold jewelry. Purchase of the necklace was made possible in part by the Misses Rajinder and Najinder Keith.

Hirshhorn Museum and Sculpture Garden

The Hirshhorn Museum and Sculpture Garden, the Smithsonian Institution's museum of modern and contemporary art, is committed to increasing the awareness and understanding of art through exhibitions and related publications, acquisitions, and public programs.

Exhibitions

Coinciding with the 80th birthday of the British painter Francis Bacon, the museum presented an overview of his far-reaching achievement. "Francis Bacon," curated by Director James T. Demetrian, drew high attendance at the Hirshhorn and a steady stream of international press coverage during its national tour. "Culture and Commentary: An Eighties Perspective," organized by guest curator Kathy Halbreich of the Museum of Fine Arts, Boston, featured the work of 15 international artists who responded to some of society's most significant changes during the past decade. Other exhibitions included "Bay Area Figurative Art, 1950–1965," organized by and first shown at the San Francisco Museum of Modern Art, to which the Hirshhorn lent nine works.

The "Directions" series, which focuses on small-scale solo shows, highlighted the work of the Russian artist Ilya Kabakov, Swiss-born Christian Marclay, and the Spanish sculptor Susana Solano. "WORKS," which features temporary installations created for the museum's building and grounds, offered site-specific pieces by the American artists Dennis Adams, David Ireland, and Matt Mullican. The LEF Foundation provided the funding for the publication of *Hirshhorn WORKS* 1989, the series' second yearbook.

Loans

The Hirshhorn lent 113 objects to museums in the United States and abroad. Five paintings and drawings by Yasuo Kuniyoshi were included in a large retrospective shown in Tokyo, Okayama, and Kyoto. Edouard Vuillard's *Portrait of the Artist's Grandmother* toured with "The Intimate Interiors of Edouard Vuillard," an exhibition organized by the Museum of Fine Arts, Houston, with venues that included the Phillips Collection in Washington, D.C., and the Brooklyn Museum

in New York. The painting then went to Europe for a traveling retrospective there. The Hirshhorn lent its newly acquired work by Edward Ruscha to a large exhibition of the artist's work organized by the Museum Boymans in Rotterdam that was also on view in Paris, Barcelona, London, and Los Angeles. Maurice Prendergast was the subject of an exhibition mounted by the Williams College Museum of Art. The Hirshhorn lent two works to the show, which traveled to New York, Los Angeles, and Washington, D.C.

Acquisitions

The museum's permanent collection was enriched by 18 purchases and 13 gifts. Among the acquisitions were *Stringed Figure No. 1* (1937) by Henry Moore, a seminal abstraction of carved wood with rows of string; *Five Past Eleven* (1989), by Edward Ruscha; and *Two Indentations* (1967), by Richard Artschwager. New works by European artists also entered the collection, among them Mario Merz's *From Continent to Continent* (1985) and Georg Baselitz's *Ciao America I* (1988). The museum has continued to acquire important paintings and sculptures by other artists, including Eric Fischl, Luis Jimenez, and Paul Thek. Notable gifts include a sculpture by Michael Singer, from Mrs. Vera List, and a sculpture by Athena Tacha, from Dr. Ellen H. Johnson. While federal funds supported a portion of this fiscal year's acquisitions, the majority of works were acquired with the support of such private funding sources as the Joseph H. Hirshhorn Purchase Fund, the Estate of Joseph H. Hirshhorn, the Regents' Collections Acquisition Fund, the Holenia Trust, and the Lannan Foundation.

Education and Public Programs

To help bring the exhibitions and permanent collection alive for the Hirshhorn's 20,000 group-tour participants—who range from schoolchildren to senior citizens—30 new docents were recruited and trained. The museum's roster of active docents now numbers well over 100, and because many are fluent in languages other than English, the Hirshhorn now offers tours in French, Spanish, German, Russian, and American sign

National Air and Space Museum



Stringed Figure No. 1 (1937), an early masterwork of wood and string by British sculptor Henry Moore (1898–1986), was acquired through the Joseph H. Hirshhorn Purchase Fund.

language. Among scheduled lectures were the monthly “Focus” talks, which featured an artist or curator participating in a Hirshhorn exhibition. Regularly scheduled free films about artists, films by artist-filmmakers, and matinees for young people continued to be popular and significant aspects of the museum’s outreach to the public.

The National Air and Space Museum maintains the largest collection of historic air and spacecraft in the world. It is also a vital center for research in the history, science, and technology of aviation and spaceflight. The museum continues to develop new exhibitions to examine the impact of air and space technology on science and society. Two exhibitions now in the planning stages will focus on the future of space exploration and on the underlying scientific principles of flight.

On January 29, 1990, Secretary Adams announced the Smithsonian Board of Regents’ reaffirmation of a previously stated preference for Washington-Dulles International Airport as the site for the proposed extension of the National Air and Space Museum. The museum’s staff has begun detailed planning for the extension.

Research and Publications

The museum has four research departments. The Department of Aeronautics is concerned with the history of aviation. The Department of Space History studies the history of rocketry and spaceflight. Scientists in the Center for Earth and Planetary Studies use data from satellites and planetary probes in research on problems of geomorphology and comparative planetology. And the Laboratory for Astrophysics conducts basic research in infrared spectroscopy of planets, stars, and galaxies and has an active program in the development of infrared instruments to be flown on spacecraft.

In the Department of Aeronautics, Peter Jakab’s *Visions of a Flying Machine: The Wright Brothers and the Process of Invention* was published by Smithsonian Institution Press. *The Aviation Careers of Igor Sikorsky* by Dorothy Cochrane, Von Hardesty, and Russell Lee was published to accompany the museum’s exhibition marking the centennial of the great Russian American aircraft designer’s birth. The Aeronautics Department welcomed several visiting scholars this year. Lee Kennett, professor of history at the University of Georgia, was Lindbergh Professor and conducted research on World War I aviation. He was succeeded as Lindbergh Professor by Richard P. Hallion from the U.S. Air Force Systems Command, who began a year of study of the history of hypersonic flight. Theodore Robinson, on

detail from the Federal Aviation Administration, continued his work on African Americans in aviation. Retired Air Vice-Marshal Ron Dick of the Royal Air Force focused his research on the Battle of Britain. Two visiting scholars from the Soviet Union, Dmitri Sobolev and Elena Zheltova, shared the International Fellowship.

In the Department of Space History, Frank Winter published *The First Golden Age of Rocketry: Congreve and Hale Rockets of the Nineteenth Century*. Gregg Herken's book *Cardinal Choices: The President's Science Advisors from Roosevelt to Reagan* was finished and submitted to publishers. Tami Davis Biddle has begun to prepare for publication the proceedings of the museum's ongoing series of lectures and symposia on "The Legacy of Strategic Bombing." David DeVorkin is working on a new book, *Science with a Vengeance: The Origins of Space Science in America*, and Allan Needell has nearly completed a book on Lloyd Berkner and the development of American science in the post-war period.

Research in the Center for Earth and Planetary Studies (CEPS) has focused on surface changes due to desertification and other arid zone processes in Africa, structural deformation on the Earth and the terrestrial planets, and the evolution of planetary surfaces. James Zimbelman and Robert Craddock are using high-resolution visible and thermal infrared images to evaluate the abundance and distribution of bedrock exposures in the highlands of Mars. Based on a statistical analysis of crater populations, Craddock and Ted Maxwell have found evidence of a planetwide resurfacing event that occurred early in the history of Mars. Thomas Watters discovered that the type of deformation found in the flood basalts of the Columbia Plateau on Earth are common to deformed volcanic plains on Mars and Venus. Scientists at CEPS continued working on the detailed geologic mapping of parts of Mars to be used in the selection of potential landing sites for a future mission. James Zimbelman, with Steven Williams of the Lunar and Planetary Institute, conducted fieldwork and remote sensing studies of the Mojave Desert of California and found that sand transported across drainage barriers along a path more than 100 kilometers in length may be related to climate change.

Scientists in the museum's Laboratory for Astrophysics have installed carbon dioxide and far-infrared la-

sers, cryogenic detectors, and a variety of other test and measurement equipment. They are developing new photolithographic and microelectronic techniques to fabricate high-precision metal mesh reflectors for use in far-infrared space instruments, in a collaboration with the Naval Research Laboratory.

Jeffrey Goldstein is using a laser heterodyne system in an observing program at the Infrared Telescope Facility on Mauna Kea, Hawaii, and at the Kitt Peak National Observatory in Arizona. The system is designed to measure wind velocities on Mars, Venus, and Jupiter to an accuracy of 1 meter per second. In collaboration with the National Aeronautics and Space Administration's Goddard Space Flight Center, Goldstein recently made the only absolute wind velocity measurements above the Venus cloud-tops to date and discovered that at those altitudes atmospheric circulation moves in a direction opposite to that of the planet's rotation.

Matthew Greenhouse, in collaboration with the Naval Research Laboratory (NRL), has developed a near-infrared Fabry-Perot spectrometer to image and study supernovas (exploding stars) in galaxies as part of a program to model the energetics of galaxies and the energy emission by galactic gas and dust. He has observed ionized iron and other atomic species in galaxies using new spectrometers at Kitt Peak and at the Wyoming Infrared Observatory, confirming his model of supernovas as the source for the energy emitted by galactic gas.

Museum Director Martin Harwit is a facility scientist for the Infrared Space Observatory (ISO), to be launched by the European Space Agency in 1993. He is also a coinvestigator on the Submillimeter Wave Astronomy Satellite, a joint program with the Smithsonian Astrophysical Observatory, also scheduled to begin in 1993.

Howard Smith, chairman of the Laboratory for Astrophysics, is a coinvestigator on ISO. He is studying the strong outflows of mass in symmetrically opposite directions associated with very young stars and, in collaboration with NRL, has observed a variety of these sources with new imaging infrared arrays coupled to Fabry-Perot spectrometers. He has discovered an extended region of molecular hydrogen affected by shock waves in a ring around one new source and has developed a theoretical model for the ionized gas in these sources.



On March 6, 1990, at Washington-Dulles International Airport, the National Air and Space Museum received one of the U.S. Air Force's newly retired SR-71 supersonic reconnaissance aircraft. The SR-71 made a final record-breaking 68-minute flight from Palmdale, California, to Dulles Airport. (Photograph by Carolyn Russo Nash)

During 1990, three visiting scientists worked at the Laboratory for Astrophysics. David Naylor of the University of Lethbridge, Canada, developed new techniques for maximum entropy deconvolution of Fabry-Perot spectra. Sara Beck of the University of Tel-Aviv analyzed infrared spectra of winds from young stars in the Southern Galactic Plane. Lawrence Cassar of the U.S. Merchant Marine Academy, New York, developed computer models for line emission from ionized gas spectra in outflows.

Exhibitions

The big event of the year was the acquisition by the museum in June of a Soviet SS-20 and an American Pershing II nuclear missile. These two weapons, regarded as the most accurate and hence most threatening of nuclear missiles, were banned by the Intermediate Range Nuclear Forces (INF) Treaty, signed by the United States and the Soviet Union in December 1987. The treaty, the first agreement to ban an entire class of

nuclear weapons, was a milestone in the effort to reverse the nuclear arms race. Only three years ago, missiles of this type were targeted against each other across a divided Europe, but today training versions of the same missiles stand side by side as harmless museum pieces in the Milestones of Flight gallery. The SS-20 was acquired from the Soviet Union in trade for a second Pershing II missile after long and complex negotiations with the Soviet Union, initiated in 1988 when the museum learned that the INF Treaty permitted both nations to retain several disarmed missiles for static display. An accompanying exhibition, "Trust but Verify: The Intermediate-Range Nuclear Forces Treaty," opened in June in Space Hall.

A new exhibition in the Air Transportation gallery, titled "Commuting in the Modern Manner: The Grumman Goose Amphibian," features the colorful yellow-and-black airplane designed in the "airminded" 1930s for personal transport. While the vision of "an airplane in every garage" never quite materialized, the Goose did become a stylish means of transportation for the well-heeled commuter and eventually filled many other roles worldwide. Some of them are still flying today.

The museum also opened an exhibition titled "The Aviation Careers of Igor Sikorsky" to mark the centen-

nial of the birth of the famed aircraft designer. In Russia before the Revolution, Sikorsky created the first four-engine airplanes. Later, in the United States, he developed flying boats (including the famous Pan Am "Clippers") and in 1939 the first practical single-rotor helicopter, the VS-300. One of these machines, lent by the Henry Ford Museum and Greenfield Village, is central to the exhibition.

British artist Rowland Emmet's whimsical flying machine, *Pussiewillow II*, has long been a favorite of museum visitors. Aficionados of Emmet's contraptions had particular reason to rejoice when the museum opened "Too Late for the Past, Too Early for the Future: Drawings and Things by Rowland Emmet" in the Flight and the Arts gallery.

"Modern Carrier Aviation: Seapower in a Changing World," which opened in the Sea-Air Operations gallery, traces the development of the aircraft carrier and the role it plays in maintaining the balance of power in the modern world. It is part of a major upgrading of the simulated carrier ready room, navigation bridge, and air traffic control center.

New information on Venus, Mars, and Neptune was added to the Exploring the Planets gallery. Notable additions include spectacular images of Neptune and Triton returned by Voyager I in 1989 and a specimen of a so-called SNC meteorite, recovered in Antarctica and believed to have come from Mars. In September, the exhibition "Modern Turbine Engines" was added to the Jet Aviation gallery. It features a CFM International CFM56-2 turbofan engine and a Pratt & Whitney Canada PW123 turboprop engine. In November, the exhibit of the German V-2 missile was updated and expanded in Space Hall.

Work is continuing on the Visitor Information Center in the South Lobby. Visitors can now obtain cassette tours of the museum in foreign languages. New interactive computers provide information on the museum, its galleries, and special events, as well as previews of IMAX films, and information on other Smithsonian museums and Washington attractions.

Collections

During 1990, the museum's staff at the Paul E. Garber Preservation, Restoration, and Storage Facility restored



Paul E. Garber (right), historian emeritus of the Smithsonian Institution, explains how kites were used as experimental devices by early aviation pioneers. This photograph was taken at the ninth annual Open House at the National Air and Space Museum's Paul E. Garber Preservation, Restoration and Storage Facility in Suitland, Maryland, which drew about 15,000 visitors during the last weekend in April.

National Museum of African Art

three significant engines that will contribute to the interpretation of World War I aviation. A British Bentley BR II, a German BMW III A, and an American Liberty V-8 will be exhibited in the new World War I gallery when it opens in 1992, along with a French Voisin Model 8 bomber, which is being restored by two museum specialists. A Pfalz D-XII is also being refurbished for this gallery.

Work continues on the restoration of the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima. The rear fuselage is near completion, alongside the fully restored forward fuselage. Two of the four engines are completed, with one being treated for the Smithsonian by colleagues at the San Diego Aerospace Museum. Restoration continues on two other World War II aircraft: an Aichi Seiran Japanese submarine-borne sea-plane that was designed to bomb the Panama Canal, and a British Hawker Hurricane. The Hurricane's Rolls Royce engine has been refinished and awaits installation.

The museum's archives acquired 75 collections, including the significant Cliff Krainik ballooning collection of nineteenth- and twentieth-century photographs and memorabilia. The archives also received the personal papers of barnstormer and aviation administrator Alexis McMullen. The film archives acquired 100 new items. Side one of the museum's seventh archival video-disc, containing 50,000 photographs of aircraft, lighter-than-air vehicles, and aircraft restored by the Smithsonian, was readied for release.

The Air Force delivered an SR-71 reconnaissance aircraft to Washington-Dulles International Airport for the museum in a record-breaking 68-minute cross-country flight. Other significant additions to the collections included a Piper Apache aircraft and a set of chromolithographs titled "The Trouvelot Astronomical Drawings."

The National Museum of African Art, the only museum in the United States devoted to the collection, study, and exhibition of African art south of the Sahara, maintained an active exhibition schedule and acquisition program this year.

Exhibitions

A major loan exhibition, "Icons: Ideals and Power in the Art of Africa," explored the ways African peoples have depicted and interpreted 5 iconic representations and included 125 outstanding works dating from the eleventh to the late twentieth century. The museum produced a 25-minute film that explores two dynamic forms of art in Mali. An illustrated catalogue, written by guest curator Herbert M. Cole of the University of California at Santa Barbara and published by Smithsonian Institution Press, accompanied the exhibition.

In May, "Yoruba: Nine Centuries of African Art and Thought" went on view. This exhibition of 100 exquisite Yoruba objects was organized by the Center for African Art in New York. Archaeological loans, some of which had never been seen outside of Nigeria, were made possible by Nigeria's National Commission for Museums and Monuments. Henry Drewal of Cleveland State University and John Pemberton III of Amherst College were the exhibition curators.

"The African Desert, 1975-1977: Photographs by Bernard Plossu" featured black-and-white and color photographs of the Sahara. "The Essential Gourd," a selection of 75 decorated gourds from northeastern Nigeria, was organized by the Museum of Cultural History at the University of California at Los Angeles. These exhibitions complemented the "Permanent Collection of the National Museum of African Art" and "Royal Benin Art in the Collection of the National Museum of African Art."

Acquisitions

One of the museum's most significant acquisitions, a wood protective figure by the Teke peoples of the Republic of the Congo, was made possible through a grant from the James Smithson Society. A nineteenth-century throne of the Hehe peoples of Tanzania, carved

in the form of a female torso, was a major gift to the museum.

Education

The museum's educational programs reach thousands of adults and children each year. Programs ranged from courses taught by scholars of African art to film series. The U.S. premiere of the film series, "Things Fall Apart," based on the highly acclaimed novel by Nigerian author Chinua Achebe, reached its conclusion in December 1989. "African Reverberations: Films about Africa and the New World" explored the complex ties that bind African and African American creativity and cultures.

A grant from the Smithsonian Women's Committee funded the development of educational materials and programs for deaf and hearing-impaired visitors. The installation of a telecommunications device for the deaf and the production of several open-captioned films are part of the museum's continuing commitment to make the museum accessible to all visitors.

Research

The Eliot Elisofon Archives, a major research resource in African art, history, and culture, strengthened its historical holdings. The most important acquisition was a collection of more than 400 vintage postcards of Africa documenting costume, architecture, and celebrations. This year, the museum appointed Christraud M. Geary as research curator of the archives. A former Rockefeller Fellow in the Humanities at the museum, Geary came to the archives from Boston University.

Among the topics being researched by curatorial staff are Central African pottery and African utilitarian objects, subjects of forthcoming permanent installations. Continuing research on the Nigerian master carver, Olowe of Ise, will result in the first monograph devoted to a traditional African artist. Museum research in progress this year also focused on the development of a film on the art and architecture of an African nomadic people, the Gabra of Kenya.

A volume published this year is the result of a scholarly symposium organized by the museum in 1987. *Af-*

rican Art Studies: The State of the Discipline includes revised and expanded research papers on the history and future of African art studies.

Conservation

The museum's conservation department completed its study of West African iron objects. Research by post-doctoral fellow Janet Schrenk continued the technical analysis of the museum's famous Benin bronze collection.

National Museum of American Art

The National Museum of American Art (NMAA) is committed to the acquisition, preservation, study, and exhibition of American painting, sculpture, graphic arts, photography, and folk art. As the largest museum of American art in the world, NMAA houses almost 35,000 objects. The Renwick Gallery, a curatorial department of the museum, collects and exhibits American crafts and decorative arts. The museum also maintains Barney Studio House as a period home open for tours by appointment.

Through its collections, the museum is redefining American art to include those cultural traditions that have been excluded in the past, such as the work of minority and self-taught artists. The museum and the Renwick Gallery now have the finest collections of minority artists of any general museum, exemplified by a growing African American collection, Hispanic American art, the extensive Hemphill collection of historic and contemporary folk art, and other recent acquisitions.

Exhibitions

Outstanding among the 18 special exhibitions mounted during this fiscal year was "Albert Pinkham Ryder," the largest and most complete review ever assembled of work by this nineteenth-century artist, who has been called America's "greatest painter of the imagination." The exhibition included a section on Ryder forgeries and another section that explored the problems of conserving the artist's many-layered, imaginative, gemlike paintings. A definitive 344-page book by Elizabeth Broun, director of the museum and organizer of the exhibition, explored Ryder's often misunderstood literary themes, clarified many little-known aspects of his career, and created a new list of accepted authentic works. To celebrate the opening of the Ryder exhibition, four artists participated in a symposium on the tradition of personal expression in American painting.

"Made with Passion: The Hemphill Folk Art Collection of the National Museum of American Art" provided a showcase for 199 objects, nearly half of the Hemphill collection recently acquired by NMAA. The collection includes both nineteenth- and twentieth-century objects created by people of many ethnic backgrounds and from all parts of the nation. The exhibi-



Taxis line up at the 8th and G Streets entrance of the National Museum of American Art on September 14 for a reception that introduced 400 of the Washington area cab drivers to the museum. (Photograph by Gene Young)

tion was a tribute to the American ability to take what is at hand and create delightful, personal, and often profound visual statements. It was also a manifestation of NMAA's expanded commitment to all forms of visual expression, including those perceived as outside the mainstream of American art. An extensive interpretive program helped visitors understand the motives and ideas of folk artists.

Another distinguished exhibition was that of 120 works by photographer Irving Penn, coorganized by NMAA and the National Portrait Gallery and shown in both museums. The NMAA portion featured new acquisitions that included portraits, fashion photography, still lifes, nudes, ethnographic portraits, and recent photographs of animal skulls. The exhibition and accompanying illustrated catalogue were supported by USAir.

Two exhibitions of drawings highlighted the work of Joseph Stella and George Caleb Bingham, artists widely divergent in time, subject, and technique. In addition to special exhibitions, the museum opened two new galleries devoted to African American art of the nineteenth and twentieth centuries. The museum frequently shares

its exhibitions with other museums and university galleries in the United States and abroad. In fiscal 1990, as many as six exhibitions traveled at one time in places as diverse as Iowa, Florida, Maine, Minnesota, and the Netherlands.

Renwick Gallery

The highlight of the Renwick Gallery's exhibition program this year was "Masterworks of Louis Comfort Tiffany." Organized by NMAA for the Renwick Gallery, it was generously supported by Tiffany & Co. and attracted more than 230,000 visitors—a record number. The 65 works, many lent for the first time by private collectors, included leaded glass windows, ceramic vases, lamps and chandeliers, enameled and jeweled objects, mosaic works, wood containers, paintings, and watercolors. The exhibition underscored Tiffany's extraordinary talents as a colorist and naturalist and his spectacular innovations as a glassmaker. In conjunction with the exhibition, the Renwick organized a symposium that explored aspects of Tiffany's decorative art and also presented a series of public lectures. The exhibition later traveled to the Metropolitan Museum of Art in New York City.

"Slave Quilts from the Ante-Bellum South," an exhibition organized by the Museum of American Folk Art in New York City, featured 25 quilts and five related pieces of furniture that demonstrated the skill, creativity, and imagination of slaves and documented their contribution to American folk art. A series of craft demonstrations on succeeding weekends accompanied the exhibition. Another outstanding exhibit at the Renwick was the pottery of George Ohr, a nontraditional potter at the turn of the century. Ohr's work is popular with contemporary collectors because it combines boldness and whimsy.

In an ongoing effort to encourage scholarly activities at the Renwick, two scholars were awarded the third annual James Renwick Fellowships in American Crafts. These in-residence fellows conducted research on aspects of contemporary American ceramics and their historical antecedents.

With the assistance of the Smithsonian's Collections Acquisition Program, the James Renwick Alliance (the Renwick's support group), and other sources, the gal-

lery expanded its burgeoning collection of contemporary crafts. The new acquisitions include works by such outstanding artists as Jere Osgood, Daniel Jackson, and Robert Arneson.

Acquisitions

Several significant acquisitions augmented the museum's collection of more than 35,000 objects during 1990. Three important additions are outstanding examples of American sculpture. Louis Jimenez's *Vaquero*, installed at the entrance to the museum, displays all the excitement of bronco busting and unites the Mexican origins of the cowboy persona with a glittering consumer culture. *Vaquero* was a gift of Judith and Wilbur L. Ross, Jr., Anne and Ronald Abramson, and Thelma and Melvin Lenkin.

In March, the museum unveiled *Singing Head* by Elizabeth Catlett, one of the country's foremost black sculptors and an outspoken advocate of popular taste and needs in aesthetic matters. A small, representative selection of Catlett's sculpture from Washington, D.C. area collections was on view in the museum lobby through March along with *Singing Head*.

Ernest Tino Trova's *FM/5' AWF #3* represents the artist's recapitulation of his "Falling Man" sculpture series, with its title an abbreviated reference to that series and to a subgroup devoted to "A Walking Figure." Trova's work reflects his interest in the dream-inspired images of surrealism and corresponds both to pop art's simplified surfaces and to industrial design.

A special strength of the museum is its collection of African American art from the nineteenth century through the present, which was dramatically enhanced during 1990 by the acquisition of paintings by Lois Mailou Jones, Romare Bearden, Jacob Lawrence, and Frederick Brown. Other acquisitions include works by twentieth-century artists Arthur Dove and George Legrady and photographer Mark Klett. In honor of NMAA's exhibition of the work of Man Ray, *Paysage Mauve*—an early watercolor by the artist—was donated to the museum by the Man Ray Trust. Also of significance were the acquisitions of two rare examples of nineteenth-century painting: *The Trial of Red Jacket* by John Mix Stanley and Washington Allston's *Hermia and Helen* (1818).

Research Resources and Activities

The museum continues to develop new and unique data bases that are made available to researchers from a variety of disciplines. The Inventory of American Sculpture continues to grow, with 5,000 records added during 1990. A mailing to 1,000 corporate collectors continued solicitation of new information on outdoor sculpture throughout the United States. Extensive preparation culminated in the transfer of the first of 260,000 records of the Inventory of American Paintings into the Smithsonian Bibliographic Information System (SIBIS).

The museum's Photograph Archives received approximately 10,000 new prints from the Peter A. Juley and Son Collection. With assistance from the Research Resources Program, the museum began printing images from its Walter Rosenblum Collection. The negatives were produced by Rosenblum, a freelance photographer whose clientele included galleries, artists, and collectors in New York from the postwar period through the early 1960s.

To celebrate the 20th anniversary of NMAA's scholars program, a symposium—"Hindsight and Insights: Scholarship in American Art, 1970–1990"—focused on new methodologies and cultural perspectives that have developed over the past two decades. Thirty Smithsonian fellows and visiting scholars were present, representing universities across the United States, as well as France and Australia.

Twenty-four students representing 17 states and the District of Columbia participated in this year's Intern Program. An increasing number of students from abroad are applying for internships; this year, two interns came from Japan, two from Germany, and one from Italy.

The annual Charles C. Eldredge Prize for outstanding scholarship in the history of American art was established by the American Art Forum, a patrons' support organization of NMAA, in honor of the former director of the museum. This year's joint recipients of the \$2,000 prize were Alan Trachtenberg, professor of American studies and English at Yale University, and Michael Fried, professor of the history of art and director of the Humanities Center at the John Hopkins University.

Outstanding works from the museum's wide-ranging

publications program included *Photography of Invention: American Pictures of the 1980s* (copublished with MIT Press) and an NMAA brochure on the work of sculptor Paulanship. Both received awards of excellence from the American Federation of Arts. Receiving an Award of Distinction from the American Association of Museums was the museum's scholarly journal *Smithsonian Studies in American Art*, copublished quarterly with Oxford University Press. Copublished with Smithsonian Institution Press was *Made with Passion: The Hemphill Folk Art Collection in the National Museum of American Art*, which appeared in conjunction with the Hemphill collection exhibition. *Visual Poetry: The Drawings of Joseph Stella* was also published by Smithsonian Institution Press for the exhibition of the artist's work.

Collections Management

More than 36,000 records of the museum's permanent collection were transferred into a new multifile data base. Staff efforts were devoted to defining standards for recording information, converting text from upper to mixed case, resolving problems caused by ambiguous and incomplete data, and consolidating variant artist names.

Education and Public Programs

The Office of Educational Programs continued to expand its public programs and educational endeavors, especially in the area of wider audience development. For Black History Month, NMAA presented "The Storyteller," a performance that examined the morals, values, and survival techniques of African Americans during the colonial period; an illustrated lecture, "The Inspirational Sculpture of William Edmondson," and a program of poetry, stories, and song about Martin Luther King Jr., Harriet Tubman, Malcolm X, and other black leaders called "Wake 'em 'n' tell 'em." Asian/Pacific American Heritage Week was celebrated by a demonstration of Japanese brush and wood block painting. For Hispanic Heritage Month, NMAA offered folk art demonstrations by two Hispanic American artists and a lecture on Hispanic art by Luis Cancel, director of the Bronx Museum, New York.

National Museum of American History

Outreach activities included participation in the D.C. Cultural Consortium collaboration with the Martin Luther King Library for the Blind and Physically Handicapped and design of an intergenerational art program for Iona House Health Center and the Mater Amoris Montessori School. A new docent recruitment program attracted many minority candidates.

In conjunction with the special exhibition "The Patricia and Phillip Frost Collection: American Abstraction 1930–1945," NMAA presented a panel discussion, lectures, a family mask-making workshop, and a ballet performance by the Amherst Ballet Theater. Two thousand people attended a Family Day celebration held for the exhibition "Treasures of American Folk Art from the Abby Aldrich Rockefeller Folk Art Center," featuring music, dancing, workshops, and a magic show.

A symposium organized by the museum and the Smithsonian Conservation Analytical Laboratory explored conservation issues and technical studies related to the Albert Pinkham Ryder exhibition. Educational resource materials developed in 1990 included a tour booklet, a teacher guide to the Irving Penn exhibition, a family activity guide for the Rockefeller folk art exhibition, an art quiz to be sold in the museum shops, a student handbook for the Hemphill folk art exhibition, and slides and text for art curricula in the Fairfax County, Virginia, and Prince George's County, Maryland, school districts. A two-month Career Awareness Program was developed for 15 high school students from the District of Columbia public school system, and special activities were inaugurated for four D.C. inner-city schools.

In 1989–90, the National Museum of American History (NMAH) celebrated 25 years of bringing American history to the American people. In this silver anniversary year, the museum opened its largest exhibition to date, "Information Age: People, Information, & Technology." As it has for the past six years, the museum continued rebuilding itself from the inside out, closing sections of the building in succession for a complete renovation of the heating, ventilating, air conditioning, and fire-protection systems—without closing its doors to the public. In October, Roger G. Kennedy celebrated his 10th anniversary as director.

Exhibitions

"Information Age," a 14,000-square-foot exhibition that traces the evolution of information-processing and communications technologies from the 1830s to the present, opened on May 9, 1990. Through the presentation of more than 700 artifacts, nearly as many graphics, films, radio recordings, more than 40 computer-driven video stations, and a 12-screen "video-wall," the exhibition helps visitors explore how information technology has changed our society during the past 150 years. The objects on display range from one of Samuel F. B. Morse's earliest telegraphs and a piece of the first transatlantic telegraph cable to modern personal computers and an industrial robot. In its use of sophisticated state-of-the-art technology, "Information Age" is the most ambitious interactive show the Smithsonian has ever done and a revolutionary approach to alternative learning in museum exhibitions. Visitors can talk over a telephone wire used by Alexander Graham Bell, analyze their fingerprints with computers, and touch a video screen to ask questions of famous inventors. At the entrance to the exhibition, visitors pick up brochures bearing individual bar codes. The brochures let visitors choose among interactive workstations throughout the exhibition and print out a personalized record of their visits and their activities as they leave.

"Information Age" received approximately \$10 million in financial support and equipment from a consortium of corporations. More than 500,000 people visited the exhibition in its first four months.

The museum opened 16 other exhibitions this year, including "From Parlor to Politics: Women and Reform

in America, 1890–1925,” which explored how women of the Progressive Era led the fight against overcrowded cities, poverty, alcoholism, child labor, public health hazards, poor working conditions, and other emerging social problems. “Quilts: A Selection from the National Collection” displayed 28 quilts made of silk, velvet, wool, satin, and even bits of old military uniforms and described the lives and talents of the people who made them, from young girls and grandmothers to a soldier stationed in Alaska and a British seaman. “Go Forth and Serve: Black Land Grant Colleges Entering a Second Century” examined the long history and contributions of black land grant colleges, and “VSJ—Varrio San José: Scenes from an Urban Chicano Experience,” an exhibition of photographs by Miguel Gandert, depicted contemporary Hispanic life in an Albuquerque, New Mexico, neighborhood. “Icons of Invention,” an exhibition of American patent models, was organized by NMAH and displayed at the National Portrait Gallery, which is located in the Old Patent Office Building. The exhibition marked the 200th anniversary of the establishment of the U.S. Patent Office and was supported by grants from the Foundation for a Creative America and the Association for Japan–U.S. Community Exchange.

Collections

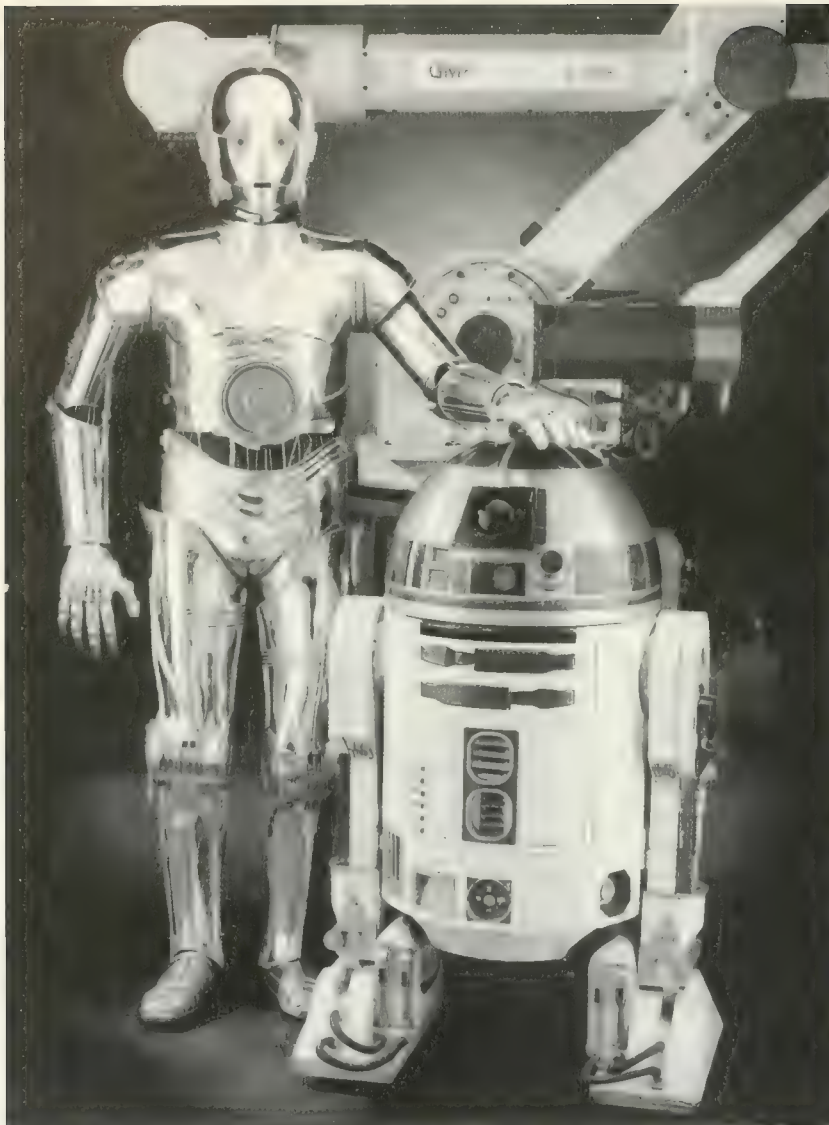
From a dragster to a silver tea service, the museum this year added thousands of objects to its collections. Among these are the Edward Orth World’s Fair Collection, which includes more than 3,000 objects from the 1939 fair in New York City and a large quantity of archival material. The addition of these artifacts gives the museum one of the world’s most comprehensive holdings of materials on this fair. Benny Goodman’s clarinet; a Yamaha computer-driven piano, one of the first of its kind; and the Eubanks Collection of 150 photographs documenting the origin and evolution of the Black Panther Party in Oakland, California, also joined the collections. Other acquisitions include the Sentry Tachs & Gauges Olds Cutlass Funny Car, winner of the 1988 National Hot Rod Association Funny Car Class championship, donated by Bruce Larson; the flag of the Second South Carolina Regiment, made in 1776, captured by the British in 1779, and purchased from

England jointly by the Smithsonian and the state of South Carolina; a 1963 prototype computerized axial tomography (CAT) scanner, developed by A. M. Cormack and donated by Tufts University; and a 1921 Ford Model T mail car equipped with skis and tanklike treads for mail service in the winter, used in Central Square, New York, between 1921 and 1930.

Part of the responsibility of collecting and exhibiting the material heritage of the American people is the work of collections management and preservation. Cataloguing, insuring, moving, lending, shipping, storing, and tracking objects all fall under the purview of the Office of the Registrar. Appropriate facilities are the first step in preserving collections. In fiscal 1989–90, teams of staff from the registrar’s office, curatorial departments, the Division of Conservation, and the Office of the Building Manager removed more than 70,000 objects from storage and display as part of the museum’s master plan for the reinstallation of exhibitions and the renovation of the building.

To make way for the new Experimental Gallery in the Arts and Industries Building, several thousand objects in the 1876 Centennial exhibition were returned to lenders or to storage or placed on exhibit in NMAH. Other members of the registrar’s staff concentrated on preparing and filling an additional 12,000 square feet of leased warehouse space for objects displaced by renovations at the museum. Financial restraints slowed asbestos removal and renovations of other storage facilities, although even in these buildings objects needed for exhibitions or loans were cleaned and transferred. The Office of the Registrar also supported the processing of 28,850 acquisitions and more than 5,600 loans to 40 states and 3 foreign nations; supported 8 exhibitions of the Smithsonian Institution Traveling Exhibition Service; prepared and packed toys, dolls, textiles, patent models, and other objects for the move to the Museum Support Center in Suitland, Maryland; and completed work on separating and rehousing files held by the Smithsonian Archives to make original collections documentation readily available to the museum. A new Master Plan for Accountability provides detailed timelines and resource allocations for reducing backlogs in registration and cataloguing, as well as for improving collections storage and accessibility.

In addition to the everyday work of keeping the mu-



C-3PO and R2-D2, characters from the film *Star Wars*, stand with a robot used to manufacture automobiles. All three are on display in "Information Age: People, Information & Technology" at the National Museum of American History. (Photograph by Laurie Minor)

seum's computers up and running, the Computer Services Center (CSC) is an indispensable partner in collections management. CSC and the registrar's office jointly designed and produced the museum's in-house data base, called the Local Collections Information System. New features added this year include computerized accession memoranda and catalogue cards, as well as improvements in security. The portable system is especially useful for work away from the museum and for tracking the movement of collections. CSC also completed its initial work on the museum's Information Architecture Project, a detailed, multiyear study of interrelated functions within the museum, and began using the results to develop software for a comprehensive data base for collections research and management, the Collections Information System. CSC also completed development of a computer system to process

older Smithsonian inventory files on-line on the museum's central minicomputer. The new system increases accessibility of the records by allowing the museum to withdraw files from the Smithsonian central computer system. The work began with the transfer of records of 30,000 objects in the textiles collection.

Exhibitions, the movement of collections, and time itself take a toll on every museum object. Counteracting the wear and tear on artifacts is the work of the museum's conservators. The Division of Conservation completed preparations for a new laboratory to provide for the needs of more than 40,000 textile and costume objects, including historic flags, uniforms, and the first ladies' gowns. Construction is scheduled to begin in January 1991. The new laboratory will allow some acceleration of a pilot project for the rehousing and stabilization of more than 400,000 objects in the graphic,

archival, and photographic collections, an effort that will extend well into the next century. More than 7,700 documents, maps, and World War II posters and 4,500 ship plans and drawings were surveyed, rehoused, and stabilized by conservation and curatorial division staff. Some 2,250 objects required intensive or specialized treatment in the laboratories of the division, including George Washington's tent, which needed 450 hours of painstaking cleaning using custom-fabricated rollers and a vacuum suction table, and the massive early computer ENIAC, which required 530 hours of preparation for the "Information Age" exhibition.

The museum's Archives Center catalogues and cares for large collections of photographic and paper artifacts and develops new resources for scholars and researchers. Two important collections on the history of the piano in America were prepared for research use this year: the photographs, manufacturing records, and related artifacts of Sohmer & Company, a New York City piano manufacturer, and of the Pratt-Read Corporation, a Connecticut manufacturer of ivory keys and piano actions, span the years 1839 to 1989 and document the technical and social history of this industry. With funds from the Smithsonian's Research Resources Program, the center began organizing the Underwood & Underwood collection of 28,000 glass-plate photographs and preparing them for reproduction on video-disc. The Center for Advertising History, part of the Archives Center, completed documentation projects on Campbell's Soup and Cover Girl advertising and began a similar project on Nike advertising. A new corporate sponsorship program has brought additional resources for this unit's research, documentation, and interpretation of advertising history. The Archives Center hosted an oral history conference of 25 engineers, programmers, and marketing representatives for the UNIVAC computer, one of the most significant information processing innovations of the 1950s. The recorded recollections of these computer pioneers will be available for researchers, adding substantially to the museum's strong collections in this field. Funding from the Unisys Corporation and support by the Charles Babbage Institute at the University of Minnesota made the conference possible.

In the work of relocating collections, installing exhibitions, and renovating the museum, the Office of the Building Manager always plays a part. The office bears

the major responsibility for planning and overseeing the museum's master renovation plan, as well as for scheduling and coordinating lengthy projects such as the removal of asbestos and the replacement of transformers containing PCBs. As a measure of distinction and gratitude for their service and support, the rigging workers in the building manager's office this year received the first annual Director's Award.

Research and Scholarship

The research of curators and other staff members lays the groundwork for the museum's exhibitions, publications, and other programs. Books published this year by museum staff include *Greek Revival America* by Roger G. Kennedy, museum director; *Men and Women: A History of Costume, Gender, and Power* by Barbara Clark Smith and Kathy Peiss; *Street Railways and the Growth of Los Angeles* by Robert Post; and *Icons of Invention: American Patent Models* edited by Barbara Janssen.

In December 1990, the Department of the History of Science and Technology received a \$4 million grant from the American Chemical Society for "Science in American Life," a major exhibition on the historical relationship between science and society to open in 1993. Research and planning for that exhibition are under way. A four-person team traveled to Guyana, South America, on a goodwill mission for the Smithsonian's Office of International Relations and the U.S. Information Agency. The trip involved surveying—and repairing where possible—that country's tower clocks, rare survivors in this hemisphere of nineteenth-century "public" clock technology. The department's American Indian Program collaborated with Hampton University in Hampton, Virginia, on an exhibition, publication, and symposium titled "To Live and to Learn: Indian Education at Hampton Institute, 1870–1923." As part of the Smithsonian Videohistory Program, department staff produced a video interview with two of the leading twentieth-century manufacturers of small arms, Eugene Stoner of the United States and Mikhail Timofeyevich Kalashnikov of the Soviet Union.

Here and abroad, scholars in the department delivered lectures and papers that reflect the breadth of their continuing research. Ramunas A. Kondratas traveled to

Moscow in March to deliver a lecture on "The Medical Collections of the Smithsonian Institution." Audrey Davis spoke on "Medical Historical Museums" at the Johns Hopkins History of Medicine Colloquium. G. Terry Sharrer gave the keynote address, "Virginia Agriculture, A.D. 2020," at a conference organized by Virginia Polytechnic Institute and State University, and Paul F. Johnston spoke at the Explorers Club in New York City on "Treasure Diving: Nautical Archaeology and the Sale of Artifacts."

The Department of Social and Cultural History this year focused its efforts on broadening the audience it serves and expanding twentieth-century holdings and research activities. The accomplishments of Bernice Johnson Reagon, who received a John D. and Catherine T. MacArthur Foundation Fellowship, epitomized these activities. With the added flexibility the award provided, she intensified her documentation and collection project, which centers on African American communities in Southwest Georgia and the Washington, D.C., metropolitan area. Her approach to collecting through case studies prompted the department to study this technique as a model for cooperative collecting of culturally diverse twentieth-century artifacts. The Division of Musical History echoed this twentieth-century orientation by sponsoring and developing a working agreement with the Rhythm and Blues Foundation, which publicly recognizes the contributions of older performers and seeks to collect related artifacts. The Chamber Music Program released a new set of recordings of the music of J. S. Bach, performed on original instruments and published to critical acclaim both in the United States and Europe. In May, the Division of Costume hosted the annual meeting and symposium of the Costume Society of America.

As a result of critical evaluations of the effectiveness of older exhibitions, "After the Revolution: Everyday Life in America, 1780–1800" has been temporarily closed for content and design revisions. A special "children's track" for younger visitors is under development for "Field to Factory: Afro-American Migration 1915–1940." The lessons learned from these exhibitions will be incorporated into future efforts, including a reinterpretation of the first ladies exhibition, which will place the lives of these important women in a broader social and political context, and a large permanent exhibition, "Land of Promise: America in the Nineteenth Cen-

tury." Staff members from both of the museums' curatorial departments and the Department of Public Programs continued work on "American Encounters," an exhibition being readied for the Columbus Quincentenary.

The National Philatelic Collection organized several exhibitions this year, including the largest display of philatelic rarities ever presented outside the museum, for the World Stamp Expo held in late 1989. For the International Congress of the Universal Postal Union, staff prepared a 24-case exhibition that also featured six historic vehicles from the museum's collection. "A Plate Proof Premier" treated the evolution of the collection's unique holdings of certified plate proofs used in the creation of U.S. postage stamps since 1894, and "A Black Contribution to Postal History" highlighted the service of John T. Jackson, Sr., the oldest black postmaster in the United States in the 1940s. In the area of public programs, more than 30 different slide-lectures produced by the collection were lent free of charge to more than 500 civic groups, philatelic organizations, and postal employee groups this year.

The past year was difficult for the National Numismatic Collection (NNC), with the death of Curator Raymond Joseph Hebert, who since 1971 had developed the Oriental section into one of the world's leading collections. This loss and the departure of two collections managers brought to a halt planned international projects on Russian and Japanese coins. The executive director of the collection, Elvira Clain-Stefanelli, compiled a two-volume catalogue of the exhibition "Rome at War" and started "From the Smithsonian," a column on the NNC that appears in *Coin World*, the world's largest numismatic tabloid. Curator Cory Gilliland completed the manuscript for the first volume in a series on the holdings of the NNC, to be published in 1991. Three traveling exhibitions were arranged with numismatic materials from the NNC, and Gilliland brought to the museum a traveling show titled "Teaching Medallion Art."

Among the four issues of *American Quarterly* published by the Office of Academic Programs was a special issue, "Cultural Criticism in America," which emerged from a joint conference held by the office and the Woodrow Wilson International Center for Scholars in June 1988. This year, the office coorganized and produced the conference "Key to Empowerment? The

Voting Rights Act of 1965” with the museum’s Program in African American Culture and the Department of History at American University, Washington, D.C. Assistant Director for Academic Programs Gary Kulik served on the U.S.–Mexico Commission on Cultural Cooperation.

During the past year, the Afro-American Communities Project has conducted research into the relationship between African Americans and the immigrant German and Irish populations during the nineteenth century in Chicago and Buffalo, New York. Project Director James O. Horton and Harmut Keil of the University of Munich delivered a paper on the topic at the March 1990 meeting of the Organization of American Historians in Washington, D.C. The project is also conducting research into the family lives of black seamen in New Bedford, Massachusetts, and Philadelphia during the antebellum years.

The April 1990 publication by Scholarly Resources, Inc., of the 15-reel microfilm set of the Papers of Robert Mills culminated the museum’s five-year program to make the writings of the architect of the Washington Monument and other important buildings available for scholarly research. The project involved collaboration with the Universities of Iowa and South Carolina and support from the National Endowment for the Humanities, the National Historical Publications and Records Commission, and other organizations.

Public Programs

In addition to collecting, preserving, investigating, and exhibiting the material heritage of the American people, the museum also seeks to reconstruct more elusive pieces of the past through music, drama, and oral heritage. Highlights of the year’s activities in the Department of Public Programs included the Program in African American Culture’s presentation of “African American Dance: Beauty, Rhythm, and Power,” dedicated to the late Alvin Ailey. The program examined the roots and development of African American dance, its impact on contemporary American dance forms, and the social, psychological, and political basis of popular dance. In celebration of International Women’s Month, “No Crystal Stair: African American Women at Work” reviewed the history and status of African American

women in the work force. “Deep River: Praise Songs from My People,” held in May, traced the influence of gospel music on the development of jazz and included performances by the David Murray Quartet and the Wesley Boyd Gospel Choir. The Jazz in the Palm Court series this year offered performances that focused on the music of Duke Ellington, ranging from a study of Ellington’s solo piano work to the influence of his music on tap dancing.

The department’s Division of Museum Programs presented more than 100 performances of music, dance, storytelling, films, and evening discussions with Washington, D.C.–area authors. The programs included a two-week series on country dance and song in America celebrating the legacy of English folklorist Cecil Sharp; music of contemporary American classical composers performed by the Twentieth-Century Consort; a tribute to Mabel Mercer and cabaret music featuring singer Margaret Whiting; and a celebration of rhythm and blues music with a performance by Sam Moore of the renowned duo Sam and Dave.

During Super Week, a project funded by the Smithsonian Special Exhibition Fund for expanding visitor involvement with museum exhibitions, the Education Division produced three new interpretive programs, including live drama, demonstration carts, and self-guides for children and families. The division also inaugurated an Exhibition Preview Area to test visitors’ reactions to the ideas and display techniques of upcoming exhibitions. Another new effort of the division is an eight-week training program for its 100 weekday volunteers. Through workshops, lectures, and a comprehensive interpreter’s manual, the program is aimed at strengthening daily tour and demonstration programs and enlarging the audience they serve. New methods for captioning the audiovisual programs for hearing-impaired visitors were implemented with a grant from the Smithsonian’s Special Exhibition Fund. The division also produced public programs on former First Lady Lou Henry Hoover, documentary photography, new trends in manufacturing, and freedom of the press, as well as a week-long Holiday Celebration and a 25th anniversary celebration featuring presentations by museum staff on behind-the-scenes operations.

In times of shrinking federal resources, the museum depends ever more heavily on support from outside the Institution. The Office of External Affairs, which en-

National Museum of Natural History/National Museum of Man

compasses public affairs, special events, and development activities, is charged with attracting financial support for the museum's projects and bringing word of the museum's work to the public. This year proved to be extremely productive with more than 90 press conferences, special fund-raising projects, exhibition openings, and receptions. The Friends of first ladies was created as a support group to raise \$2 million for the first ladies exhibition and has been endorsed by each of the living first ladies. The highlight of the group's first event was a visit with Barbara Bush at the White House. The office also organized an event at the Hard Rock Cafe in New York City to announce the creation of the John Hammond Fund for the Performance of American Music. This permanent endowment fund will enable the museum to offer free public performances of a wide variety of American music. Early contributors to the fund, which has an initial goal of \$5 million, include Bruce Springsteen and Stevie Ray Vaughan.

Singer Michael Jackson toured the museum this year. Former Prime Minister Takeshita of Japan also paid a special visit, as did dignitaries from Mexico and Gambia. The museum once again hosted the National Endowment for the Humanities Jefferson Lecture reception, as well as a reception inaugurating the premiere season of "Invention," a television series produced by the Discovery Channel in cooperation with the Smithsonian.

The National Museum of Natural History/National Museum of Man (NMNH) is the nation's major research museum, supporting scholarly investigations in anthropology and the natural sciences by 118 staff scientists, by visiting scholars and students from all over the world, and by 31 resident scientists from affiliated agencies with closely related functions (U.S. Department of Agriculture, National Marine Fisheries Service, U.S. Fish and Wildlife Survey, U.S. Geological Service, and National Institutes of Health). The extensive research program, conducted in the field and laboratory, depends heavily on the museum's collection of documented artifacts and specimens of plants, animals, fossils, rocks, and minerals—the largest and most valuable natural history and anthropological collections in the world. The collection now numbers more than 120 million items.

The museum shares its work with the scholarly community through publications, symposia, and scholarly exchanges and with the public through exhibitions, popular publications, public forums, and educational programs. Testifying to the success of the public programs were the approximately 6 million visitors to the museum in 1990, making NMNH by far the most frequently visited natural history museum in the world.

Research

Global Change in Earth History

In conjunction with Earth Day 1990, the museum presented a series of briefings on the history of global change to members of Congress, science administrators, the press, and the public. The talks were organized by a museum research team that is determining the kinds of disruptions terrestrial ecosystems have experienced during the Earth's history. Their data, gathered from the fossil record in museums and research institutes throughout the world, establish that in 400 million years the Earth has experienced repeated episodes of global warming and cooling, with such consequences as extinction and deforestation.

Leading the team's presentations were anthropologist Richard Potts and paleobiologists Kay Behrensmeyer, William DiMichele, Brian Huber, and Scott Wing. Other museum researchers added perspectives on past

and possible future changes in ocean circulation, ocean productivity, sea level, paleoclimatic influences, and the impact of early humans on terrestrial and marine ecosystems.

Museum volcanologist Tom Simkin is the senior author of "This Dynamic Planet," a five-foot-wide color wall map that shows the Earth's volcanoes, earthquake epicenters, and boundaries and movements of the large tectonic plates that make up the Earth's crust. Published in 1990 by the U.S. Geological Survey in collaboration with the museum, the map is intended as a general reference and as a teaching aid for classroom use. The map and its explanatory text pinpoint nearly 1,450 volcanoes active during the past 10,000 years along with 141,300 earthquakes from as far back as 1897.

The map was generated by computer from data collected by the museum's Global Volcanism Program (GVP), the leading source of information in the world on volcanism. GVP operates the Global Volcanism Network (GVN, formerly SEAN), a unique worldwide reporting network that now includes more than 550 foreign correspondents. GVN reports on eruptions, large and small, are read by tens of thousands of people each month.

Philippine Research

In April and May of 1990, Ernani Menez, director of the museum-administered Smithsonian Oceanographic Sorting Center, in collaboration with four scientists from the Scripps Institution of Oceanography and the University of Utah, collected deep-sea benthic (floor-dwelling) marine plants and invertebrate animals in the Philippines that will be screened for naturally occurring anticancer substances. This work, which was supported by the Smithsonian and the National Cancer Institute, followed the signing of a memorandum of understanding between the Philippine government and the Smithsonian in November 1989, reaffirming past cooperative efforts and promising new collaboration.

Human Ecological History

The museum's Human Ecological History Program seeks to document and place in perspective the turning points in humankind's long history of changing the

Earth's environment, from the origin of humans through the agricultural revolution to the development of modern urban life. Highlights of the program include Richard Potts's important research at Olorgesaili in Kenya's Great Rift Valley, which was featured in a March 1990 *Science* article. The site sheds light on one of the most interesting and least understood periods of human evolution—the mid-Pleistocene—when *Homo erectus*, a large-brained hominid species that lived 300,000 to 1.7 million years ago, roamed the region and probably had begun its expansion into Asia and other parts of the world. Potts and his colleagues are in the vanguard of paleoanthropologists who are interested in doing more than just excavating isolated sites of bones and artifacts. His team is digging trenches the entire three-mile length of the site to reconstruct the context of the landscape—climate, plants, and wildlife—in which the hominids lived in an effort to figure out patterns of early human behavior.

In another research finding from the program, Bruce Smith reported in a December 1989 *Science* article that the prehistoric Indians of eastern North America began growing several types of wild plants for food as early as 4,000 years ago and were farming their own native crops for hundreds of years before maize (corn) was first brought here from Central America. This new evidence establishes the region as one of the half-dozen areas of the world where agriculture is now thought to have originated independently and challenges the long-standing belief that North Americans learned farming techniques from their more technologically advanced southern neighbors, who are known to have domesticated corn and squash.

Biodiversity Studies

The museum's Biodiversity Program in Amazonia and other regions of the New World tropics expanded in 1989–90 in response to growing concern about the accelerating destruction of forests and other habitats. A new director, Don Wilson of the U.S. Fish and Wildlife Service, was appointed.

The Biological Diversity of Tropical Latin America (BIOLAT) program, now in its fourth year, is concerned with inventorying, understanding and preserving the species richness of tropical rainforests. Long-term

This team of global change experts at the National Museum of Natural History is working on a project of breathtaking immensity: reconstructing the entire history of plant and animal life on land over the last 400 million years. Kay Behrensmeyer and Martin Buzas are seated at the table. Behind them are, from left, Rick Potts, Dennis Stanford, William DiMichele, Ian Macintyre, Tom Simkin, Brian Huber, and Scott Wing. (Photo by Eric Long)



surveys, in progress in Bolivia and Peru, were extended to Ecuador in 1990. A training workshop in Biological Collecting and Systematics was held in Lima, Peru, in 1990 for 150 Peruvians and Bolivians.

The Biological Diversity of the Guianas (BDG) program, directed by botanist Vicki Funk, completed a series of plant collecting trips in Guiana in 1989–90, including excursions up the Cuyuni and Canje rivers, to the town of Ituny, and to the Rupununi savanna.

The Biological Dynamics of Forest Fragments (BDFF) project, transferred to the Smithsonian from the World Wildlife Fund in 1989, is located at sites near Manaus, Brazil. For a decade, scientists there have studied the changes that occur in the Amazonian rainforest ecosystems of Brazil as human development encroaches. This project is now recognized for its major contributions to the relatively new field of conservation biology. The known history of the forest-clearing and the secondary growth at BDFF sites offer an unequaled opportunity to study the processes involved in habitat fragmentation and forest regeneration.

Arctic Studies Center

The museum's Arctic Studies Center, established in 1988, is dedicated to the study of arctic and subarctic people, cultures, and environments. It serves scholars, the public, and northern peoples and communities throughout the circumpolar world.

In July 1990, the center organized an expedition by a joint U.S.-Canadian survey team, led by museum archaeologist William Fitzhugh, to begin the first stage of a multiyear archaeological study of Martin Frobisher's

base camp at Kodlunarn Island, Frobisher Bay, off southeastern Baffin Island in the Canadian Arctic. Frobisher, an Elizabethan explorer, made three voyages to the Arctic between 1576 and 1578 in search of the Northwest Passage and gold, finding neither. As the first English establishment on the soil of the New World and the most significant documented early contact between Europeans and the Inuit, Kodlunarn Island is a site of international historical importance. In addition to investigating the remains of the Frobisher mines and camps, the project will study the impact of early European contact on sixteenth-century Inuit (Es-kimo) culture of southeast Baffin Island. Preliminary results from the 1990 fieldwork reveal that many Inuit archaeological sites of this period contain extensive evidence of European material goods dating to the Frobisher expeditions.

Other Expeditions and Research Activities

Oceanographer Daniel Stanley continued his long-term investigation of coastal plain subsidence, sea-level rise, coastal retreat, and saline groundwater intrusion in the Nile Delta. He reported in 1990 that the delta is undergoing substantial sinking—as much as one-fifth of an inch per year in the Port-Said region near the Suez Canal—causing serious erosion and invasion of salt water, which is already severely limiting agriculture. This area is Egypt's major agricultural breadbasket for its rapidly growing population, which exceeds 55 million people. Stanley's program, now in its sixth year, is a collaborative effort with 12 other laboratories in North America, Europe, and Egypt to identify those

sectors of the delta that can still reasonably be protected as the changes occur.

In May, the museum made its sixth expedition to Aldabra Island, a remote atoll in the western Indian Ocean accessible only by ship. Considered one of the world's great natural wonders, it harbors the only surviving colonies of the Indian Ocean giant tortoise—a population that has now grown to 160,000—as well as large numbers of other unique plant and animal species. Among the seven scientists on the trip were George Zug and Ian Swingland, who have begun a multiyear study of the tortoise's nesting behavior and rates of growth.

In the Bocas Del Toro Archipelago, a maze of hundreds of biologically unexplored islands, reefs, and mangrove swamps off Panama's northwestern Caribbean coast, museum scientists are discovering extraordinary numbers of relatively newly evolved birds, mammals, reptiles, and amphibians. In the spring, mammalogist Charles Handley led the museum's fourth expedition to this archipelago, including ornithologists, herpetologists, a botanist, and mammalogists.

Notable Publications

Northwest Coast (Smithsonian Institution Press), the ninth in the museum's projected 20-volume encyclopedic *Handbook of North American Indians*, was published in September 1990. The 58 chapters were written by 59 anthropologists and historians. The volume, edited by Wayne Suttles of Portland State University in Oregon, summarizes present knowledge of the environment, prehistory, languages, and environmental relations of the native peoples of coastal Oregon, Washington, British Columbia, and southeast Alaska.

Museum botanist Warren Wagner is the senior author of the two-volume *Manual of the Flowering Plants of Hawaii* (University of Hawaii and Bishop Museum Press). The first such treatise in 100 years, it is a crucial reference work on an island ecosystem in which many of the plant species are becoming extinct.

Guide to the Marine Isopod Crustaceans of the Caribbean (Smithsonian Institution Press), was written by marine zoologist Brian Kensley with illustrations by the museum's Marilyn Schotte.

Creativity of Power: Cosmology and Action in Afri-

can Societies (Smithsonian Institution Press) contains 12 essays that explore the concepts of power, action, and human agency in African social systems and cosmologies. The volume is coedited by ethnologist Ivan Karp.

Marine zoologist M. G. Harasewych is the author of *Shells from the Sea* (Rizzoli International), which discusses the origin, evolution, and diversity of 600 selected sea shells drawn from the spectacular William D. Bledsoe Shell Collection, donated to the museum in 1988.

Museum mammalogist Louise Emmons wrote the text for *Neotropical Rainforest Mammals: A Field Guide* (University of Chicago Press), the first color-illustrated guide of its kind.

The Mississippian Emergence, edited by archaeologist Bruce Smith, is a collection of essays by 11 leading scholars on the development of the Mississippi Valley Indian cultures in the Midwest and Southeast during the period A.D. 700–1200.

Conferences and Workshops

Museum scholars played a major role in organizing and hosting the Sixth International Conference of the International Council for Archaeozoology, which was attended by 250 scientists from around the world in May 1990.

Fifteen hundred scientists from 39 countries attended the Fourth International Congress of Systematic and Evolutionary Biology in July 1990, cosponsored by the Smithsonian Institution and the University of Maryland. Museum botanists Stanwyn Shetler and Vicki Funk served on the local organizing committee and arranged a symposium on biodiversity.

The second Mexican Bee Workshop was held in April 1990 in Hermosillo, Mexico. Organized by Mexican and U.S. scientists with funding provided by the Smithsonian, the workshops are an outgrowth of a cooperative program on the bees of Mexico started in 1985 with museum entomologist Ronald McGinley as one of the organizers. The 1990 gathering emphasized biological studies, including pollination ecology and nesting biology.

Following a 1989 joint U.S.S.R.-U.S. expedition on a Russian research vessel to unexplored tropical reefs of

the Seychelle Islands in the Indian Ocean, collaborative Soviet-Smithsonian research on marine plants and corals continued. In July 1990, botanists Mark and Diane Littler, who had participated in the Seychelle cruise, hosted a workshop on marine systematics at the museum for four Soviet colleagues. The Soviet group then accompanied the Littlers to the Smithsonian Marine Station at Link Port in Fort Pierce, Florida. The goal of this visit was to survey the unique tropical marine reefs of the Florida Keys, a region particularly important to scientists because of the pioneering work in marine systematics conducted in these environmentally threatened reef areas.

Smithsonian Marine Station

The Smithsonian Marine Station at Link Port, Fort Pierce, Florida, which is administered by the museum, provides a unique opportunity for scientists to study marine organisms. Local marine habitats include mangroves, seagrass beds, mud and sand flats, coral reefs, shallow- to deep-water sandy plains, and the Florida current with its myriad tropical plankton and larvae. These environments enable Smithsonian scientists to conduct systematic, ecological, reproductive, and behavioral studies. In 1990, a five-member scientific committee from outside the Institution reviewed the program of the research station and issued an extremely favorable report.

In one current study at the Marine Station, the museum's Clyde Roper heads a team conducting a long-term investigation of the ecology and diversity of squids, octopuses, and other cephalopods from the near shore to the Gulf Stream waters. This seasonal sampling is examining the distribution and abundance of squid and octopod larvae in relation to temperature, salinity, depth, and oxygen content of oceanic waters, as well as to daily and seasonal variation.

Native American Relations

In July and August 1990, at the annual Comanche Homecoming Powwow in Walters, Oklahoma, and at the Crow Fair Celebration in Crow Agency, Montana, JoAllyn Archambault, director of the museum's American Indian Program, presented to tribal officials photo-



Powwow Committee Chairman Raymond Nauni, Sr., accepts a historic photograph on behalf of the Comanche tribe from JoAllyn Archambault, director of the American Indian Program at the National Museum of Natural History. The presentation, made at the tribe's annual Homecoming Powwow in Walters, Oklahoma, in July, was part of an ongoing project called the Tribal Catalog Series. The project involves tribe members in research efforts on objects, photographs, and paintings at the Smithsonian that are associated with that tribe. (Photograph by Walter Bigbee)

graphs of Comanche and Crow cultural objects, as well as copies of all historical photographs of their people in the museum's National Anthropological Archives.

The photo documentation is part of the museum's ongoing Tribal Catalog project. Comanche and Crow tribal members have been of valuable assistance in accomplishing the research and photography. Eventually copies of historical photographs will be provided for all major U.S. tribes represented in the archives.

The passage of the National Museum of the American Indian Act in November 1989 provided for the "Inventory, Identification, and Return of Indian Human Remains and Indian Funerary Objects in Possession of the Smithsonian." As early as 1984, the museum had begun to return objects and human remains for reburial. The largest of these earlier transfers was in 1988 when human remains removed from a cemetery in 1892 by a surgeon collecting for the Army Medical Museum were returned to the Blackfeet of Montana for reburial. The museum, in compliance with the new law, is responding to other reburial requests as received. On July 17, 1990, the remains of 81 Native Hawaiians, identified as coming from the islands of

O'ahu, Maui, Lana'i, and Hawai'i, and unknown sites, were turned over to the Native Hawaiian organization Hui Malama I Na Kupuna O Hawai'i Nei. Remains from another 133 humans from mainland Hawaii are to be returned to a different Hawaiian organization at a future date.

Exhibitions

"Nomads: Masters of the Eurasian Steppe" featured 1,400 objects from nine leading Soviet museums, illustrating the cultures of the nomadic people of the steppes over a period of 3,000 years. The exhibition, organized by the Natural History Museum of Los Angeles County, highlighted gold treasures from fifth- to fourth-century Scythian tombs, colorful costumes, saddles, weapons, and armor.

The customs and everyday life of early Egyptian society between about 4000 B.C. and 2700 B.C. were the focus of "The First Egyptians." Organized by the University of South Carolina's McKissick Museum, Columbia, South Carolina, the exhibition was the most comprehensive exposition of predynastic Egypt to date.

"Life in the Ancient Seas," the first permanent exhibition to focus on prehistoric marine life ever constructed by a major U.S. museum, opened to critical acclaim in May. The hall completes the 15-year renovation of the paleontological exhibits. Among the highlights are an 11-foot walk-around diorama of a Paleozoic Era reef, 2,000 fossil specimens, and a spectacular mural (16 by 120 feet) by the noted artist Ely Kish. Many of the creatures exhibited vanished as a consequence of global change at the close of the Paleozoic and Mesozoic eras.

In "Dinamation: Dinosaurs Alive and in Color," an exhibition that has captivated the younger generation in museums around the world, visitors encountered a variety of animated dinosaurs and other prehistoric creatures in reconstructed natural settings and with sound effects. The exhibition offered a glimpse of 185 million years of evolutionary history from the dawn of the Dinosaur Age to its last days.

As part of a spring-summer dinosaur-fest, the museum presented Jim Gary's whimsical "Twentieth-Century Dinosaurs." Gary uses a welder's torch to transform parts of old automobiles into metallic, brightly colored creatures that resemble prehistoric beasts.

"A Jeweler's Art: Masterpieces from Van Cleef & Arpels," showcased 100 examples of the historical art deco creations of the famed jewelry company. Among the highlights were brooches, bracelets, necklaces, earrings, vanity and powder boxes, watches, evening bags, and special commissions dating from the 1920s through the 1960s.

Two extraordinary gifts were placed on exhibition in the Gem and Mineral Hall. A 396.30-carat kunzite necklace, designed by Paloma Picasso, was a gift from Tiffany & Co., and the Independent Jewelers Association donated an almost flawless 120-pound specimen of Brazilian, transparent smoky citrine (yellow quartz), of extraordinary form, size, and quality.

"Native American Basket Masterpieces," featuring 14 pieces collected by the museum before 1920, as well as 13 contemporary masterworks, is part of the modernization of the Native American halls. Twenty-one tribes are represented by baskets ranging from the simple and utilitarian to exquisitely decorated works designed for ceremonial purposes.

In January 1990, the museum announced a \$6 million fund-raising campaign to support the construction of "Geology, Gems, and Minerals," a new hall that will open in 1995. The museum's current geology hall is so outdated that it fails to portray plate tectonics and continental drift, concepts that have revolutionized Earth science. An innovative new design will integrate specimens and processes into a single dynamic educational experience.

Education

Nineteen special weekend presentations of Native American arts and crafts, organized by Aleta Ringlero of the Office of Education, drew up to 1,500 visitors a day. The artists, selected for their excellence in design and execution and their ability to communicate with the public, demonstrated skills reflecting their tribal traditions. Carved Plains-style flutes, beaded dolls, woven baskets, and carved Northwest Coast masks were among the crafts featured.

In January 1990, the American Indian Theatre Company of Tulsa, Oklahoma, came to the museum to present "Legends from the Fire." The troupe's eight actors were students from the fifth grade through junior college and represented different Oklahoma tribes. Five

National Museum of the American Indian

performances over three days drew standing-room-only audiences of children to Baird Auditorium.

In cooperation with the Global Tomorrow Coalition and the American Institute of Biological Sciences, the Office of Education organized a panel of experts for the day-long forum "Earth Day 1990: Shaping a New Environmental Agenda." Leading experts, including Paul Ehrlich of Stanford University, John Holdren of the University of California, and Smithsonian Assistant Secretary for External Affairs Thomas E. Lovejoy, discussed how problems such as tropical deforestation and climatic change are demanding a reordering of environmental priorities. The event was coordinated by Deborah Rothberg.

The Natural Science Institute for Teachers of Minority Students, a three-week summer program organized by Carmel Ervin, was held in July 1990. Funded by the District of Columbia school system through the Dwight D. Eisenhower Act, this program for teachers of grades 4 through 12 featured instruction on "reading" natural history objects. Twenty-four teachers enrolled in the course, which took them beyond the museum to the Smithsonian's Environmental Research Center and National Zoo, the National Aquarium in Baltimore, and the U.S. Geological Survey.

Nine Siberian musicians and dancers from Sakhalin Island in the Soviet Far East performed in March in Baird Auditorium, entertaining their audience with stories, songs, ritual dances, games, and acrobatics of the Nanai, Orok, and Nivkh peoples. The event, coordinated by Carolyn Sadler, was sponsored in collaboration with the Asia Society, New York.

A "Nomad Family Day" in January, organized by the Office of Education to accompany the exhibition "Nomads: Masters of the Eurasian Steppe," featured the Office of Education's Deb Bennett and her horse Sadie, who demonstrated the ancient riding styles and costumes of the Nomadic tribes of the first century A.D. The Dark Horde, a group of "Mongol" hobbyists dressed in Nomadic costumes, demonstrated Nomadic crafts and read folktales to children and their parents.

Staff Changes

Robert Sullivan was appointed the museum's associate director for public programs.

On November 28, 1989, the National Museum of the American Indian was established with the signing of Public Law 101-185. It is the 15th museum in the Smithsonian's family of museums and galleries. The formal transfer of the collections and assets of the Museum of the American Indian, Heye Foundation, to the Smithsonian Institution took effect on June 24.

Considered a "living memorial to Native Americans and their traditions," the museum will embody the highest aspirations of American Indians. The centerpiece of the new museum will be the collection of more than 1 million artifacts from the Museum of the American Indian, Heye Foundation, in New York City. The collection also includes a photo archives and other resource materials. The National Museum of the American Indian will have three components: the George Gustav Heye Center, located in the old U.S. Custom House in lower Manhattan; a storage, research, and conservation facility at the Smithsonian's Museum Support Center in Suitland, Maryland; and a museum in Washington, D.C., located on the National Mall next to the National Air and Space Museum. The Heye Center is scheduled to open in the summer of 1992; construction of the Mall facility is expected to begin in fiscal 1994. The museum will continue to operate its facility at Audubon Terrace in New York until the Heye Center opens.

Construction costs for the three facilities will total approximately \$175 million, with funding to be obtained from private and government sources. Alice Green Burnette, Smithsonian assistant secretary for institutional initiatives, has completed the planning of a fund-raising campaign.

On June 1, 1990, after a nationwide search, W. Richard West, Jr., became the first director of the National Museum of the American Indian. A member of the Cheyenne-Arapaho Tribe of Oklahoma, West has had a distinguished career as a lawyer. He brings to the directorship considerable experience in Indian cultural, educational, legal, and governmental issues.

The goal of the museum is to recast traditional elements of museum organization and programs to demonstrate a historic and fundamental change in the relationship with the American Indian community. The interdisciplinary programs will explore Indian culture as reflected in history, music, painting, sculpture, dance, and drama. The museum will be a place where



At a May 21 press conference, Secretary Adams announced the appointment of W. Richard West, Jr., as director of the National Museum of the American Indian. West spoke at the press conference, standing in front of *Bear-Catcher, a Celebrated Warrior*, a portrait painted by George Catlin in Kansas in 1832. (Photograph by Dane Penland)

Indian culture is represented as a continuum, not, as the director has said, as a “mere snapshot of the pristine and often romanticized past” too often presented in traditional museums. Outreach programs will make the collections and other resources accessible to the Indian community. The museum will also seek ways to support the Indian community’s own initiatives in cultural development.

Planning for the museum began early this year with the formation of 11 groups that addressed needs and concerns in the areas of public programs, facilities and construction, collections, training and outreach, technology applications, budget and administration, development and public relations, research, governmental relations, international relations, and the opening exhibition at the Custom House. In addition, formal consultation with the Indian community began in the spring. Meetings were held in Oklahoma with representatives from tribes of Oklahoma, Kansas, and Texas and in Cody, Wyoming, with representatives of several Plains Indian tribes. Additional meetings are scheduled throughout the country in 1991.

Architectural planning for the Mall museum and the Suitland research facility began with the search for a firm to develop program specifications for architectural planning and design. The firm will work closely with museum staff and American Indian consultants in determining the program requirements for the new museum.

A major thrust of the legislation that established the museum concerned the repatriation of human remains and associated funerary objects to Indian individuals and tribes. Under the legislation, the National Museum of Natural History has appointed a five-member review committee to assist staff in the repatriation process. In August, Secretary Adams, West, and other representatives from the Smithsonian met in Albuquerque, New Mexico, with representatives of tribal museums, cultural centers, the Indian community, and state and private museums. Pending legislation on repatriation and future courses of action were discussed, and continuing dialogue and cooperation in dealing with repatriation issues and responsibilities were ensured.

National Portrait Gallery

The National Portrait Gallery (NPG) chronicles America's past by exhibiting and studying portraits of those who have left an imprint on U.S. history and contributes to American art history through the study of the artists who have created this portraiture. Using both its permanent collection and special exhibitions, the gallery encourages the public to contemplate leaders in politics, the arts and letters, business, science, sports, and other areas who have shaped American culture.

Exhibitions

To commemorate the bicentennial of the Federal Judiciary Act and highlight the pivotal interpreters and shapers of our legal system, the gallery mounted "Portraits of the American Law" in October 1989. This exhibition featured images of distinguished American judges, lawyers, and legal theorists from the years of the early Republic to the late twentieth century. Support for the exhibition was provided by three national law firms: Morgan, Lewis & Bockius; Vinson and Elkins; and Kirkland and Ellis.

"To Color America: Portraits by Winold Reiss" brought together images of various ethnic groups, particularly African Americans and Native Americans, made by the German-born artist Winold Reiss. From the moment of its opening in October 1989, the exhibition brought new audiences to the gallery. Support was received from Burlington Northern Foundation, the Anschutz Foundation, and the Smithsonian Special Exhibitions Fund. A panel version of this exhibition will travel beginning in 1991 under the auspices of the Smithsonian Institution Traveling Exhibition Service.

"Irving Penn Master Images," organized with the National Museum of American Art and sponsored by USAir, included the 120 master photographs Penn gave to the two museums. The exhibition went on national tour after it closed in August. A selection of masterworks from NPG's photograph collections, ranging from daguerreotypes of the 1840s to a giant Polaroid print of the 1980s, was shown simultaneously.

Among the most popular exhibitions ever held at the gallery was "Oliphant's Presidents: Twenty-Five Years of Caricatures," which opened in April for a seven-month run. The caricatures, sketches, and sculpture by political cartoonist Pat Oliphant of the last six presi-



Pat Oliphant's bronze of Lyndon Johnson as a centaur with a western hat focuses on the unpredictable and mythic element of this enigmatic man by merging ancient traditions of classical mythology and equestrian portraiture with the indigenous American cowboy theme. This piece was included in the Portrait Gallery's exhibition, "Oliphant's Presidents: Twenty-Five Years of Caricature." The sculpture was on loan by Pat Oliphant, courtesy of the Susan Conway Carroll Gallery.

dents—from Lyndon Johnson to George Bush—went on national tour under the auspices of Art Services International.

Another popular success was "The Five of Hearts: Henry Adams and His Washington Circle," which



Political cartoonist Pat Oliphant, Susan Conway Carroll, and photographer Irving Penn (left to right) meet at the opening reception of "Irving Penn Master Images," cosponsored by the Portrait Gallery and the Museum of American Art.

opened in June 1990 and included portraits and memorabilia of the friends who came together in the Adams and Hay homes on Lafayette Square beginning in 1880. The "hearts" were historian and writer Henry Adams, grandson and great-grandson of presidents; his wife Clover, hostess of Washington's most exclusive salon and a gifted photographer; John Hay, author and statesman; his wife Clara, heiress to an industrial fortune; and Clarence King, brilliant geologist and failed entrepreneur.

The National Portrait Gallery is housed in the old U.S. Patent Office building, so it was fitting that the gallery commemorate the 200th anniversary of the establishment of the patent system with "Icons of Invention: American Patent Models." Twenty-eight models selected from the Smithsonian's collection were displayed in the original Model Hall. Sponsored by the Foundation for a Creative America and the Association for Japan-U.S. Community Exchange, the exhibition was jointly organized with the National Museum of American History.

Acquisitions

During 1990, approximately 191 acquisitions enhanced NPG's collections. Among the most important were a 1792 life portrait of Thomas Paine; a self-portrait of Charles Willson Peale; a 1910 poster of the first black heavyweight champion, Jack Johnson; eight pastel portraits by Will Cotton; more than 50 drawings by William Auerbach-Levy; and portraits of Helen Keller and the noted bridge authority Ely Culbertson. A painting

of President Ronald Reagan by Henry Casselli was purchased for the gallery's Hall of Presidents by several friends of former President and Mrs. Reagan. The gallery acquired a rare vintage 1926 portrait photograph of Solomon R. Guggenheim by Lazlo Moholy-Nagy, as well as a fine, previously unknown daguerreotype (ca. 1851) of Henry Clay by Frederick de Bourg Richards of Philadelphia and an extremely rare Man Ray photograph (ca. 1922) that depicts Gertrude Stein posing for the Jo Davidson portrait sculpture that is one of the icons of the NPG collection. During the year, an additional 126 *Time* covers were transferred to the gallery.

Publications

In 1990, NPG published *Irving Penn Master Images*, with essays by the gallery's Will Stapp and the National Museum of American Art's Merry Foresta, and an exhibition catalogue on Winold Reiss along with an illustrated checklist of all known portraits by Reiss, both by guest curator Jeffrey Stewart. The University of Washington Press is distributing Frederick Voss's catalogue, *Portraits of the American Law*. *Oliphant's Presidents* by Wendy Reaves was published by Andrews and McMeel.

The University of Delaware Press is publishing the papers from the 1987 conference on "The Portrait in Eighteenth-Century America"; the Barra Foundation has agreed to sponsor publication of Ellen Miles's catalogue of the work of profilist C. B. J. Fevret de Saint-Memin (1770-1852). The University of Pittsburgh Press is publishing a volume of critical essays, *New Perspectives on Charles Willson Peale*, celebrating the 250th anniversary of the artist's birth. Volume 3 of the *Selected Papers of Charles Willson Peale and His Family: The Belfield Farm Years, 1810-1820*, was issued by the Yale University Press. Patricia O'Toole, guest curator of "The Five of Hearts" exhibition, is the author of a book on the group published by Crown Publishers.

Education

The Education Department interprets the gallery's collection for its visitors through daily tours, elementary

and secondary school programs, and senior citizen outreach programs. In conjunction with the Winold Reiss exhibition, the department conducted a symposium, "The Politics of Portraiture: Icons, Stereotypes, and Other Approaches to Multicultural Imaging," and a portrait-drawing workshop, "Diversity in Portraiture," targeted for culturally diverse high school art students. The department also held a series of caricature-drawing workshops in conjunction with "Oliphant's Presidents." A multicultural view of American history was provided visitors through the lectures, symposia, one-person biographical plays, recitals, concerts, storytelling, and other events in the ongoing "Cultures in Motion" program.

Research

The Catalog of American Portraits (CAP) continued to expand its service to researchers of American history and American art history. In addition to several local collections, major portrait collections in Missouri were surveyed and photographed for the CAP research files. With the aid of a research grant, significant portraits of or by Hispanics were surveyed in Puerto Rico and various areas of the mainland United States. More than 2,000 portrait records, mostly from the southwestern United States, were added to the CAP data base.

The gallery's Peale Family Papers project continued its work on volume 4 of the selected papers of this famous artistic family and on Charles Willson Peale's autobiography (volume 5). The staff edited a volume of critical essays on Peale's work and, with the aid of a research grant, continues research for the *catalogue raisonné* of Rembrandt Peale's work.

A Research Resources Grant funded the creation of a data base finding aid to the Meserve Collection of Mathew Brady negatives, the rehousing of those negatives in archival materials, and the making of preservation prints and facsimile negatives from the Mathew Brady imperial format glass-plate negatives of Edwin Forrest donated to the NPG by the Edwin Forrest Home for Retired Actors.

The Office of Exhibits Central (OEC) provides exhibit-related services throughout the Institution in the areas of exhibit design, exhibit script writing and editing, fine cabinetry, sheet plastics, packing and shipping artifacts, modelmaking, taxidermy, matting and framing, and silkscreening.

The year 1990 was one of diversity for OEC, both in the kinds of projects undertaken and the number of clients served. The following are highlights from more than 200 projects undertaken by OEC.

National Air and Space Museum. Working from scanty documentation, the OEC Model Shop made a 1/16-scale model of a Staaken R-IV, a World War I German biplane.

National Museum of American Art. The OEC Graphics Unit produced period stenciling for the exhibition "Treasures of American Folk Art."

National Museum of American History. OEC designed, edited, and produced the exhibition "Go Forth and Serve: Black Land Grant Colleges Entering Their Second Century" and edited the accompanying brochure.

Experimental Gallery. The Model Shop built a scale model of the gallery for planning. OEC designers are advising on transforming the existing space in the Arts and Industries Building into one suitable for a changing exhibition gallery.

National Museum of Natural History. The OEC Fabrication Unit produced 21 large wall cases to display Chinese hell scrolls. For the upcoming exhibition "Beyond the Java Sea: Art of Indonesia's Outer Islands," the OEC editor worked with curators to edit the exhibit script and write the gallery brochure. The Fabrication Unit built more than 50 custom exhibit cases and shipping containers for the artifacts. The Graphics Unit mounted photographs and silkscreened interpretive text and labels.

National Zoological Park. OEC illustrator Chris Reincke painted two murals: a background for the rhinoceros iguana in the Reptile House and a 12-foot by 6-foot background painting for the Great Barrier Reef aquarium in the Australia Pavilion. OEC designed a new entrance and introductory area to the bat cave and produced life-size models of bats for the entrance. The office also prepared a preliminary design and scale model for a new exhibit about bats.

Office of Horticulture

Smithsonian Institution Traveling Exhibition Service (SITES). In addition to 15 new exhibitions that OEC designed and/or produced for SITES, exhibits that ended their tour came to OEC for dispersal, and others came in to be refurbished before continuing their tours. Among the new exhibitions were two copies of “Climbing Jacob’s Ladder: The Rise of the Black Churches in Eastern American Cities, 1740–1877,” adapted from the Anacostia Museum exhibit of the same title; “The Road to Heaven Is Paved by Good Works: The Art of Reverend Howard Finster,” which includes 40 pieces of folk art; and “Frank Lloyd Wright: Preserving an Architectural Heritage,” from the Domino’s Pizza Collection.

Visitor Information and Associates’ Reception Center. The new Smithsonian Information Center was a showcase for the skills of OEC’s Fabrication Unit, which built most of the cherry wood furnishings. OEC also designed and produced the graphics and directional signage.

The Office of Horticulture (OH) manages more than 80 acres of gardens and grounds, rotates horticultural displays in interior public spaces in the museums, and provides flowering and foliage plants for Smithsonian Institution special events and exhibitions. Floral designs and specially grown plants are made available on a limited basis. In addition to this full range of horticultural services, the office has developed educational activities and exhibitions using collections of living plants, garden furniture, and images of contemporary and historic horticulture.

Program Highlights

The office concentrated this year on the maintenance of older trees and shrubs on the Smithsonian grounds by instituting spraying, cabling, pruning, and replacement programs. Safety issues were addressed by elevating limbs and pruning for better illumination of the grounds. The office also continued to improve the soil in the Enid A. Haupt Garden. The research, design, and installation of a computerized irrigation system for better control of watering was initiated. Walter Howell of the Grounds Management Division designed and created a topiary dinosaur, 18 feet long and 10 feet tall, for the grounds of the National Museum of Natural History. The steel framework, which was a team effort with Reed Martin of the Office of Exhibits Central, was filled with soil and covered with four varieties of English ivy.

The office’s Greenhouse-Nursery Division (GND) continued to produce exhibition-quality plants for the gardens and grounds, including colorful annuals for 180 decorative hanging baskets, 35 antique cast-iron urns, and seasonal plantings around the museums. Totals included 8,740 pot plants and 3,800 forced bulbs for interior displays, 35,800 pansies, 3,200 ornamental cabbage and kale plants, 700 garden chrysanthemums, 43,000 annuals, and 23,000 alternanthera. In addition, the division provided more than 16,600 plants and about 300 floral arrangements for more than 820 special events. Division staff rotate about 3,000 foliage and flowering plants a year, on a biweekly schedule, to complement the interiors of the museums. For the December holidays, the office produced 1,300 poinsettias

and decorated the museums and gardens, bringing a festive atmosphere to the Smithsonian.

Exhibitions and Collections

The 13th annual "Trees of Christmas" exhibition was held in the National Museum of American History. Of the 11 trees on display, seven were new to the exhibition. Crafts artists across the United States created 2,762 handmade ceramic, corn-husk, paper, tole, brass, hand-painted wood, quilted, and lace ornaments, which they donated to the office's collection.

Throughout the year, the office continued to stage exhibitions in the North Foyer of the National Museum of Natural History. Ornamental grasses, cymbidium orchids, ferns, ivies, and poinsettias were among the featured collections.

The popular traveling exhibition "Victorian Gardens," developed by the Office of Horticulture and the Office of Exhibits Central in conjunction with the Smithsonian Institution Traveling Exhibition Service, is now in its third year of touring the United States.

Four specimen orchid species, selected and cultured by Cheyenne Kim of the Greenhouse-Nursery Division, received special awards from the National Orchid Society. Kim also designed the Smithsonian's award-winning entry in the Institutional Division of the National Orchid Society's exhibition in October 1989. Ted Villapando, also a GND orchid specialist, gave a lecture illustrated with images of the OH orchid collection to the Orchid Society of Charlottesville, Virginia.

The office has begun cataloging the Archives of American Gardens (AAG) collection of contemporary and historic landscapes. Additions to the archives this year were the Lewis and Valentine and Lane Weems collections. Lewis and Valentine, one of the country's oldest landscape firms, became famous for moving mature tree specimens on large estates. This collection includes photographs and nursery documents related to gardens featured in the AAG. The Lane Weems Collection documents the estate of Katharine Lane Weems, noted American sculptor.

In conjunction with the Office of Product Development and Licensing, the office completed another successful year of a collections reproduction program with Garden Source, introducing several wirework and steel

spring chairs. In addition, the office coordinated the reproduction by Garden Source of an antique J. L. Fiske fountain in its collections for the garden at Blair House. The original will be returned to the Smithsonian collections.

Office of Museum Programs

The preservation, interpretation, and accessibility of cultural patrimony is the public service that all museums provide. An urgent concern for museums today is achieving cultural equity in this public service by reflecting and serving our diverse society. Cultural equity can best be attained by a multicultural museum profession that understands its responsibilities to its public. Providing leadership in addressing these important issues is the principal focus of the Office of Museum Programs, the center of museum studies at the Smithsonian.

Following on a redefinition of mission and a reallocation of staff resources in 1989, the office developed pilot programs for a new curriculum in 1990. Experimental programs in career counseling, Smithsonian staff training, national in-career development, and international exchange laid the foundation for planning a full national curriculum in museum studies.

The office serves four major constituencies: students, Smithsonian museum staff, and national and international colleagues. Four programs were produced for these constituencies. Students considering museum careers were served by a new intern placement service and an intensive on-site seminar focusing on the responsibilities of museum work and the training necessary to enter the museum profession. In several workshop sessions, Smithsonian museum staff studied diverse ways people learn, applying a new appreciation of learning styles to the planning of museum exhibitions and public programs.

Museum colleagues representing communities across the country came to Washington in June for the office's first annual Training Congress, "Building Partnerships: Museums and Their Communities." Twenty of the 85 museum leaders who attended received the office's award for minority museum professionals. This group came to the Smithsonian for a week of independent study before the congress. As a group of leaders articulate in their concern for building cultural equity in the museum profession, they are important members of a new group of advisers, planners, and teachers for future training programs at the Smithsonian. They will continue to be included in the program planning process, linked by a newsletter published three times a year.

International colleagues were partners in "Making Exhibitions, Constructing Realities," a conference held

at the Museu Paraense Emilio Goeldi in Belém, Brazil, in November. A faculty of six U.S. and six Brazilian museum leaders headed discussions and workshops on the theory and practice of interpretive exhibitions. This conference achieved a balance of conceptual inquiry and practical application in the context of cultural diversity, a goal for all of the office's instructional programs.

The office began a new initiative to serve Native American communities in 1990. In developing internships, resident study, and instructional courses in cooperation with tribal museums and colleges, the office is working closely with the National Museum of the American Indian. Using a national network of community sites, the office is creating a new program of American Indian museum studies based on the ethical, conceptual, and technical environment that Native Americans are articulating for public institutions. The work of this program will in turn shape the office's national curriculum.

As 1990 concludes, the constituencies of the office have been defined, the structure of a national curriculum has emerged, staff priorities have been articulated, and a new planning and budget process is in place. Deputy Director Teresa LaMaster joined Acting Director James Sims in March to help lead the redefinition process. Sylvia Churgin, head librarian, began reorganization of the Museum Reference Center in December, refining the national inquiry service and planning for redefined collections for museology research.

Office of the Registrar

The Office of the Registrar (OR) supervises the management of the Institution's vast collection of 137 million objects and specimens. Monitoring Institution-wide collections management policies and procedures, the office is an advocate and catalyst for bureau initiatives and programs that ensure increased access to and continued accountability for the national collections.

The principal Smithsonian policy document guiding collections management, Office Memorandum 808: Collections Management Policy, was updated and officially approved by the secretary during 1990. The policy places renewed focus on maintaining internal controls, developing collecting plans, managing collections information, balancing the goals of access and accountability, and representing cultural and biological diversity. The policy directs collecting units to redraft individual policies and formalize collecting plans to assist in resource and facility management.

Beyond the physical care of the national collections, the Office of the Registrar is responsible for the management and accessibility of information about them. In 1990, the Collections Information System (CIS), a multiyear, pan-Institutional project, implemented data base systems at the National Air and Space Museum and the National Museum of American Art and in the Departments of Anthropology and Botany at the National Museum of Natural History.

Other activities of the Office of the Registrar include helping staff identify appropriate technologies, training needs, and resources crucial to cross-disciplinary activities. The office advocates the use of new technologies to streamline the daily work of collections management staff and improve recordkeeping by connecting collections, research, and administrative activities. The Office of the Registrar also promotes research in the standardization of Smithsonian data to facilitate information sharing within and outside the Institution.

In the international sphere, the office presented the latest findings of its worldwide survey of computerized collection documentation to the International Council of Museums. The office coordinated a collaborative program between the Smithsonian and the Museo de la Nacion in Lima, Peru, which involved the exchange of museum personnel and the sharing of collections management and conservation techniques and museum ideologies.

Smithsonian Institution Traveling Exhibition Service

America's changing cultural landscape brought new and invigorating challenges to the Smithsonian Institution Traveling Exhibition Service (SITES) in 1990. Efforts to expand the reach of Smithsonian exhibitions to 11 million museumgoers beyond Washington, D.C., replaced SITES's recent emphasis on international art exhibitions. SITES also made a new commitment to serve museums, educational institutions, and community groups that have not benefited fully from the Smithsonian's presence outside the nation's capital.

SITES's broadened program services demanded fresh, innovative approaches to exhibition development, marketing, and affirmative action hiring. SITES worked toward these goals throughout 1990, bolstering its roster of minority staff and advisory committees, strengthening its alliances with culturally diverse professional associations and community organizations, and establishing interdisciplinary staff teams to carry out exhibition projects. Such measures supported SITES's determination to circulate exhibitions that not only incorporate diverse viewpoints and educational methods, but also respond to the broadest possible spectrum of program interests, technical needs, and financial capabilities in communities across the nation.

Preparatory exhibition workshops became a key vehicle through which SITES accomplished its mission. In a new approach to initiating exhibition tours, SITES advertised to potential host museums only a program's core subject matter and probable cost. Interested parties responded by reserving a slot on the exhibition's itinerary and attending a workshop with SITES's staff team, curatorial scholars, advisory committee members, educators, designers, and host museum representatives and civic leaders from communities in which the exhibition would be featured. Together the workshop participants reviewed exhibition content, educational goals, design formats, public program possibilities, fund-raising strategies, and community needs. The ideas, aspirations, and concerns expressed by potential exhibitors and local sponsors thus became the focus around which SITES developed, packaged, and promoted the actual exhibition.

SITES's 1990 workshop for "Climbing Jacob's Ladder: The Rise of the Black Churches in Eastern American Cities, 1740-1877" illustrates how grassroots participation shaped the traveling version of an exhibition created by the Smithsonian's Anacostia Museum. The

host museums expressed concern that the museum's original artifact-intensive presentation might undercut available public program funds by requiring expensive crating, shipping, insurance, installation, and security measures. In response, SITES produced a simpler panel version that surveyed key exhibit subjects but left room for communities to include information and artifacts pertinent to local history. Workshop participants who were interested in featuring "Climbing Jacob's Ladder" in churches or community centers encouraged an easy-to-install design format that could be handled without expert assistance, could be accommodated in large or small spaces, and did not require wall space or professional gallery lighting. Perhaps most important, the "Climbing Jacob's Ladder" workshop generated public programs that related exhibition content to contemporary concerns, stimulating heightened dialogue among interfaith community groups.

The workshop model enhanced another Anacostia Museum exhibition that SITES reconfigured in 1990, "The Real McCoy: African American Invention and Innovation, 1619-1930," as well as "Contrasts: 40 Years of Change and Continuity in Puerto Rico. Photographs by Jack Delano," an exhibition that SITES developed in partnership with the Institute for Puerto Rican Affairs, the National Museum of American History, Smithsonian Institution Press, the Smithsonian Educational Outreach Program, and Alan Fern, director of the National Portrait Gallery.

Working to ensure that the largest percentage of its program offerings would come from Smithsonian resources, SITES took on seven new Smithsonian exhibitions in 1990. These projects will supplement 30 already in circulation. The exhibitions in SITES's 1990 schedule represent not only the Institution's museums, but new research from the National Zoo, the Smithsonian Tropical Research Institute, and the offices of Folklife Programs, Institutional Studies, and Environmental Awareness. This range of offerings gives audiences across the nation a fuller picture of the Smithsonian's scope and programmatic vitality.

The Smithsonian's international profile as the central cultural address in the United States continued to place SITES at the forefront of certain pan-Institutional international projects. In 1990, two exhibitions highlighting Soviet-American cultural exchange and shared research—"Crossroads of Continents: Cultures of Siberia

and Alaska" and "Moscow: Treasures and Traditions"—traveled under SITES's auspices. Announcement of the new National Museum of the American Indian generated many exhibition requests from institutions abroad, leading SITES to investigate a wide range of traveling exhibition opportunities that could tour both foreign and U.S. museums. As the year drew to a close, SITES completed workshop plans to reconfigure its leading environmental exhibition, "Tropical Rainforests: A Disappearing Treasure," for museums and educational groups in Latin America.

Exhibition Summary

During the past year, SITES exhibitions traveled to 217 cities in 42 states, the District of Columbia, and countries abroad and were viewed by more than 11 million people. A total of 319 exhibition tours were scheduled between October 1, 1989, and September 30, 1990. Fifteen new exhibitions were introduced in 1990.

New Exhibitions, October 1, 1989, to September 30, 1990:

All Systems Go: America's Transportation System for the 1990's

Architectural Drawings and Watercolors of Paris and Rome by Jakob Ignaz Hittorff (1792-1876)

Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities, 1740-1877

Constance Stuart Larrabee: WW II Photo Journal

Contrasts: 40 Years of Change and Continuity in Puerto Rico. Photographs by Jack Delano/Contrastes: 40 Años de Cambio y Continuidad en Puerto Rico. Fotografías de Jack Delano

A Day in the Warsaw Ghetto: A Birthday Trip in Hell
Frank Lloyd Wright: Preserving an Architectural Heritage, Decorative Designs from The Domino's Pizza Collection

Great American Comics: 100 Years of Cartoon Art

India Along the Ganges: Photographs by Raghubir Singh

Irish Decorative Arts of the 18th and 19th Centuries from the Collections of the National Museum of Ireland, Dublin

Moscow: Treasures and Traditions
 Paintbrush Diplomacy: Children's Art from the Americas
 Provincetown and the Art of Printmaking
 The Road to Heaven Is Paved by Good Works: The Art of Rev. Howard Finster
 Secessionism and Austrian Graphic Arts (1900–1920) from the Collection of Neue Galerie der Stadt, Linz

Exhibition Tours, October 1, 1989, to September 30, 1990

Number of Bookings	319
Number of States served (including District of Columbia)	42
Estimated Audience	11 million
Exhibitions listed in 1989 Update (catalogue of SITES exhibitions)	108
New exhibitions produced this year	15

The Smithsonian Internship Council, which monitors internship programs throughout the Institution, served 650 interns during this fiscal year, an increase of 43 from fiscal 1989. This year, the council's activities were both internal and external. Within the Smithsonian, the council shared information with other groups about the Internship Council and intern-related matters. Activities outside the Smithsonian included outreach to organizations—including colleges and universities—that have mutual interests and concerns.

Among the council's internal activities were presentations by the Office of Personnel Administration on the Federal Junior Fellowship and the Stay-in-School Program and by the Office of Museum Programs on the office's role in providing registration, orientation, and counseling services for all Smithsonian interns. Council members briefed the Smithsonian's Latino Working Committee on the Internship Council's activities, policies, and procedures. The committee expressed interest in hosting interns, providing contacts with Smithsonian offices and bureaus, and working with the council to identify sources of funding for stipends. The Smithsonian African American Association suggested that the council look at ways to encourage black colleges to participate in internship programs and recommended that the council be represented on the association's Human Resources Committee. The Asian/Pacific American Heritage Committee raised the issue of the public's failure to perceive Asian Americans as a minority and noted the lack of information throughout the Smithsonian on the Asian American experience.

In outreach efforts, the council met with representatives of two organizations to discuss ways to increase communication and cooperation: the National Capital Association for Cooperative Education, which is composed of members from 20 universities and colleges in the Washington, D.C., area, and the Council for International Exchange of Scholars, which administers postdoctoral Fulbright scholarships in the United States. The council also hosted the director of internships from Wake Forest University for an exchange of information.

PUBLIC SERVICE

James Early, Acting Assistant Secretary

The Office of the Assistant Secretary for Public Service and the units it oversees serve as channels for the diffusion of information and assistance inside and outside the Institution. These offices plan and execute educational programs through museum and school-based education projects, disseminate information on the Smithsonian to broad national audiences, and engage in research and the documentation of living cultures. In view of the nation's rapidly changing demographics and the implications these factors have for museums and public education, the Office of Public Service is also mandated to facilitate and advance issues of cultural pluralism and cultural equity.

The Smithsonian's Cultural Education Committee, which advises the secretary on ways to expand multiculturalism among professional and administrative staff in the Institution's research and exhibition programs, sponsored the annual Martin Luther King, Jr., birthday celebration. Vine Deloria, Jr., noted author and former executive director of the National Congress of American Indians, spoke on "Clarity Begins at Home: Rethinking the Human Rights Question." The celebration also featured a performance by the American Indian Theatre Company of Oklahoma.

During the year, the office sponsored pan-Institutional ethnic celebrations for Black History Month, Asian/Pacific American Heritage Week, and Hispanic Heritage Month. Timed to coincide with the Smithsonian's observance of Women's History Month, the office cosponsored with the Ford Foundation and the Smithsonian Women's Council the seminar "Gender Perspectives: The Impact of Women on Museums."

Forty-nine innovative projects were awarded grants by the Smithsonian's Educational Outreach Fund in 1990. Administered by the Office of the Assistant Secretary for Public Service, the fund supports bureau- and office-based initiatives in public outreach and education.

Other activities of the office included support for the Latino Working Committee's request to bring a Puerto Rican musical group, Los Pleneros de la 21, to the Washington, D.C., Latino Festival. With the National Council of Negro Women, the office cohosted a reception honoring the annual Black Family Reunion celebration in September. A working seminar for Smithsonian staff, "Cultural Equity and the Humanities," was organized in collaboration with the Federation of State

Humanities Councils to explore program partnerships with council representatives. The office also organized a session on "The Smithsonian Institution's Multicultural Agenda for the 1990s" at the biennial symposium of the Association of American Cultures.

Marshall J. Wong was appointed director of the Smithsonian's Office of Wider Audience Development to coordinate ethnic celebrations and to further develop collaborative relationships with museums, organizations, and individuals to promote cultural diversity and equity.

National Science Resources Center

In the years before children begin school, they exercise their limitless curiosity daily. When they enter the classroom, their universe can be expanded and new areas of inquiry can be opened, or their search for knowledge can be stifled by endless memorization from the pages of a textbook. Too often, this is the way science is taught. As a result, the curious child eager to find out what makes a plant grow, how electric bulbs light, and what happens to caterpillars inside the chrysalis becomes a student who dreads the next science class.

The National Science Resources Center (NSRC) is committed to changing this situation. Established in 1985 as a joint initiative of the National Academy of Sciences and the Smithsonian Institution, the NSRC is working with scientists and educators across the country to reform science instruction and bring students closer to real science through hands-on exploration.

Research shows that children, especially young children, learn science best when they have a concrete body of experience on which to base abstract concepts. For this reason, a common element in most of the NSRC's programs is the introduction of hands-on science activities into the schools.

The NSRC's programs, which are conducted nationwide, encompass three related categories: the development of new and innovative science teaching materials, the dissemination of information about effective hands-on science teaching resources, and the sponsorship of outreach activities to help school districts improve their science programs. The past year was marked by achievements in all three areas.

Development of Science Teaching Resources

Science instruction units for grades one through six from the NSRC's Science and Technology for Children (STC) curriculum project will be ready for national marketing and distribution beginning in the spring of 1991. During the next four years, 24 STC units will be developed and published on a variety of topics in the life, physical, and earth sciences and technology. Each STC unit consists of a teacher's guide with 16 lessons that emphasize observation, experimentation, and analysis; a set of reusable student activity books; and a classroom kit of inexpensive and easily maintained materials.



The bulb lights for Ardesa Robinson as she uses a small motor and a rubber band to generate electricity as part of the National Science Resource Center's *Magnets and Motors* science unit. The setting is Ardesa's sixth-grade classroom at the Stuart-Hobson School of the District of Columbia Public School system, where the *Magnets and Motors* unit was trialed. (Photograph by Dane Penland)

All STC units are trial-taught in urban classrooms in the Washington, D.C., area and then field-tested nationwide. The first units were field-tested in some 55 schools in cities, suburbs, and rural areas, reflecting a cross-section of teachers and students. The results of this evaluation effort indicated that the units can be taught successfully by experienced and inexperienced teachers alike and are appropriate for students with differing abilities, skills, and backgrounds.

Information Dissemination

This year, the NSRC catalogued its growing library of 5,000 volumes of elementary, middle school, and high school science teaching materials and developed a new data base for the collection that will enable easier access by visiting teachers. This data base will support revision of the NSRC's popular publication, *Science for Children: Resources for Teachers*. Published by the National Academy Press, this guide to science curriculum materials and sources of assistance for elementary school teachers who want to teach hands-on science has sold 20,000 copies and recently received the Outstanding Academic Book Award from the American Library Association. An additional 20,000 copies have been distributed free to the nation's science supervisors and superintendents of schools. Work has now begun on a new NSRC resource guide, *Science Teaching Resources for Middle Schools*.

The NSRC maintains a growing network of individuals working to improve science teaching, including superintendents of schools, teachers, scientists, science museum educators, and officials from professional educational and scientific organizations. The 31,000 members of this network receive the semiannual NSRC *Newsletter* and information about other NSRC programs.

Outreach

During each of the past two summers, the NSRC has held an Elementary Science Leadership Institute at the Smithsonian. These institutes bring together teams of teachers, school administrators, and scientists for workshops and discussions on strategies for implementing

effective elementary science programs. To date, the institutes have involved 32 school districts from 25 states, representing some 1 million school children. The institutes are proving to be effective; after sending representatives to the first institute, for example, the Midland, Michigan, public school system received a large grant from a local foundation to convert an old school into a new science materials center to support Midland's hands-on science program.

The NSRC is planning a larger national outreach project, the National Elementary Science Leadership Initiative, which will link local and state leaders in a massive effort to improve science education in their schools. The support of community leaders and parents for improved science programs will be stimulated through the production and distribution of multimedia information packets about the importance of hands-on elementary science education and the elements of an effective school science program. The project also will expand the Elementary Science Leadership Institutes and provide follow-up support and technical assistance to school districts working to reform their science programs.

Office of Elementary and Secondary Education

How can teachers and their students derive maximum benefit from the Smithsonian and other community and museum resources? The Office of Elementary and Secondary Education (OESE) provides answers to this question through its innovative educational materials and programs.

This year, the OESE's local programs spoke to the culturally diverse traditions of the Washington, D.C., metropolitan area. "Word of Mouth," a weekend symposium cosponsored with the Division of Public Programs, National Museum of American History, gave teachers new ways to incorporate the multicultural perspective into academic lessons. More than 200 local teachers learned how to use oral traditions in the classroom. Workshops showed participants how to avoid stereotypes, how to set up oral history projects in the classroom, and how to use theater techniques to teach language arts. Performers introduced Native American, Hispanic, and African American narratives. Planning for a second symposium on folk narratives in contemporary and urban environments is under way.

Another new local program brought recent urban high school graduates to the Institution for eight-week internships. The pilot SOL '90 (Smithsonian Opportunities for Learning) program was modeled on the OESE's 15-year-old national Summer High School Internship Program. Together these programs gave 45 graduating high school seniors experience working in Smithsonian offices and behind the scenes in museums and the Zoo.

Santillana, a leading educational publisher of bilingual and English-as-a-second-language materials, contracted with the OESE to publish the office's preschool program, being prepared as part of the Smithsonian's Columbus Quincentenary commemoration. Introducing the people and cultures of the Americas, these teaching kits in English and Spanish will include educational games, books, and hands-on activities.

The office's Jackdaws series of classroom materials received major funding from the Phil Hardin Foundation. This grant will add publications on the blues tradition and the social history of rock and roll to the OESE's ongoing series on American music. The Jackdaws series, which will begin publication in 1991, draws on a range of Smithsonian resources, such as the Folkways Archives and several photographic collections, as well as on outside organizations such as the

Mississippi State Historical Museum and the University of Mississippi.

This year, OESE's popular newsletter *Art to Zoo* reached a record number of educators and students. Each issue of the quarterly publication provides a complete lesson plan and bilingual student activity page in English and Spanish on subjects related to the Institution's holdings or research interests. The timely "200 Years and Counting: How the U.S. Census Tracks Social Trends" was the most popular issue of the year.

Part of Your General Public Is Disabled, published in 1987, had record sales, with orders from as far away as Australia and Hong Kong. Revenue from the project will support a second edition of this popular book and videotape. Requests for interpreter services for hearing-impaired people also exceeded requests in all previous years.

Following the success of a project funded in 1989, Brother International Corporation awarded OESE a second grant to publish *Image and Identity: Clothing and Adolescence in the 1990s* for use in the 1990-91 school year. Developed in collaboration with the Division of Costume, National Museum of American History, this curriculum supplement involves adolescents in original research that may add to the Institution's holdings of the clothing of today's young people.

Office of Folklife Programs

The Office of Folklife Programs researches, presents, and helps conserve traditional ethnic, tribal, regional, minority, and working-class cultures in the United States and abroad through scholarly research, professional advocacy, and public programs. Highlights of the year included the presentation of three highly acclaimed programs at the Festival of American Folklife, the mounting of an important photodocumentary exhibition on African American culture, the initiation of a Soviet-American folklife research project, and the ongoing activities of Smithsonian/Folkways Recordings.

Festival of American Folklife

The 24th annual Festival of American Folklife celebrated the continuity and diversity of cultures in the United States and around the world. Held on the National Mall June 27 to July 1 and July 4–8, the festival featured living exhibition programs highlighting the cultures of the U.S. Virgin Islands and Senegal and the “Musics of Struggle.”

More than 70 Virgin Islanders demonstrated their domestic, occupational, and celebratory traditions, including *kallaloo* cooking, herbal medicine practices, *anansi* stories, net making, charcoal making, calypso music, scratch bands, and *quadrille* dancing. The Senegal program featured representatives of the Wolof, Serer, Toucouleur, Peul, and Manding peoples who presented the importance of social relationships and personal integrity at home, in the market, and in public performances with cooking, *griot* praise singing, *sabar* dancing, *lambe* wrestling, hair braiding, weaving, jewelry making, and discussions about personal adornment and comportment. “Musics of Struggle” showed how traditional forms of music, song, chant, and movement are used with new lyrics or in new contexts to express a sense of purpose and motivate groups to address contemporary circumstances. The musical expressions presented were associated with the U.S. civil rights movement, Gallaudet University’s “Deaf President Now” movement, the farmworkers’ movement, and the struggles of Appalachian coal miners, Quichua Indians from Ecuador, and South Africans in the antiapartheid movement. Israeli, Palestinian, Kurdish, and Irish singers were also featured.

The success of the festival generated the Virgin Is-



Near the dance hall in the U.S. Virgin Islands program, a *moko jumbie* towers over a spectator during the 1990 Festival of American Folklife. Brought from other islands in the Caribbean, the stiltwalking tradition is now part of the U.S. Virgin Islands culture. (Photograph by Jeff Tinsley)



At the 1990 Festival of American Folklife, Mamadou M'Baye Diouf and Sidy Sary wrestle in a *lambe*, a tournament game associated with harvest celebrations throughout Senegal.

lands Cultural Preservation Act and the establishment of a Virgin Islands Cultural Institute. It also provided the impetus for Senegal's President Abdou Diouf to pledge a building for the developing West African Research Center.

The office is working closely with the Hawaii State Foundation on Culture and the Arts to remount that portion of the 1989 festival in Honolulu and with Michigan State University to produce its annual folklife festival, modeled after the Michigan program at the 1987 Festival of American Folklife.

Folklife Research and Publications

During 1990, scholars conducted studies on the traditions of Senegal, the U.S. Virgin Islands, Soviet and Soviet American music and folklore, Vietnamese and Indonesian folklife, immigrant cultures from Latin America and Southeast Asia, and African epics.

The Folklore Summer Institute for community-based researchers was held for the second year. Twelve scholars met with distinguished folklore faculty from the

Washington, D.C., area and other parts of the nation, gaining an opportunity for training and information exchange.

A U.S.-U.S.S.R. exchange project was initiated this year in collaboration with the Soviet Ministry of Culture, the Soviet Folklore Commission, Melodiya Records, scholars of the Soviet Academy of Sciences, and several U.S. and Soviet universities. The project joins American and Soviet scholars to study traditional culture and its transformations by carrying out fieldwork in both Soviet and Soviet American communities. Studies will examine continuity and change in verbal art, song, ritual, crafts, and foodways among Russian, Armenian, Bukharin, Ukrainian, and other immigrants to the United States and their related populations in the Soviet Union.

Research began for a Smithsonian Folklife Studies monograph and film on Persian, Indian, and Caribbean variants of Muharram, an annual religious ritual observed by millions of believers throughout the Islamic world. A volume on occupational cultures has also been initiated with potential for a television series. "*Kathputli: The Art of Rajasthani Puppeteers*" was a

finalist in the American Film and Video Awards for 1990, and the monograph and film by Thomas Venum, Jr., on the Ojibwa dance drum was awarded the Society for Ethnomusicology's Klaus Wachsmann Prize for best scholarship in organology.

The first edition of the *Directory of African American Folklorists* was compiled and includes nearly 100 individuals and 30 organizations around the country with an indication of their scholarly interests and backgrounds.

Smithsonian/Folkways Recordings and Archives

Smithsonian/Folkways Recordings has released many new publications and reissues and is continuously expanding its archival holdings. Publications this year include the new compilations "Tuva: Voices from the Center of Asia," "Don't Mourn—Organize! Songs of Labor Songwriter Joe Hill," "Been in the Storm So Long: Spirituals, Folk Tales and Children's Games from John's Island, South Carolina," "Sing for Freedom: The Story of the Civil Rights Movement through Its Songs," and "A Fish That's a Song," a recording for children produced in cooperation with the National Museum of American Art. Reissues of children's releases include three recordings by Pete Seeger and 12 by Ella Jenkins.

Negotiations continue on the acquisition of several collections for the archives: the Woody Guthrie archives, which contains papers, recordings, and artwork from this prolific singer-songwriter; the Cook collection, a small record company's collection that includes 140 master recordings, several hundred hours of recordings, and artifacts of the record industry of the 1950s; and Pete Seeger's recordings, films, and papers. A computerized data base for the archives is in operation that will hold all audio, visual, and documentary information on Festival of American Folklife participants, Folkways records, and archival materials.

Columbus Quincentenary Programs

The last of the symposia in the Columbus Quincentenary series examining the relationship between expressive culture and economic systems in the New World

was held in Oaxtepec, Mexico. "Seeds of Industry: Transformations of Indigenous Technology in the Americas" was cosponsored with the Centro de Investigación y Estudios Superiores en Antropología Social (CIESAS), Secretaría de Educación Pública (SEP), and Instituto Nacional Indigenista. The symposium examined divergent local and European understandings of demographic, societal, and environmental resources in the Americas at the time of interhemispheric contact. Two volumes of papers from previous symposia are being prepared for publication in Spanish and English, *Seeds of the Past* and *Seeds of Commerce*.

Special Projects

Two lectures cosponsored with Howard University completed the scholarly series "South Africa Today: Living in a Divided Society." Fatima Meer, Nelson Mandela's biographer and professor at the University of Natal, addressed the issue of apartheid in South Africa after Mandela's release from prison. Cyril Ramaphosa, secretary general of the National Union of Mine Workers, spoke on his assessment of current developments in South Africa.

Research conducted by photographer Roland Freeman and folklorists Glenn Hinson and Jerrilyn McGregory culminated in the successful photodocumentary exhibition "Stand by Me: African American Expressive Culture in Philadelphia," which opened at the Afro-American Historical and Cultural Museum in Philadelphia in October. The research project on which the exhibition is based was sponsored by the Office of Folklife Programs and supported by an editorial grant from *National Geographic* magazine and in-kind services from the Philadelphia Folklife Project. The exhibition, which will tour the country, was supported by a grant from the Smithsonian Special Exhibition Fund. A photo essay based on the exhibition was featured in the August issue of *National Geographic*.

Office of Public Affairs

The first Americans and efforts to tell their story through the establishment of the National Museum of the American Indian took center stage this year at the Smithsonian. Through publicity and publications, the Office of Public Affairs helped bring the Smithsonian's Native American programs, as well as African American, Latino, and Asian American programs, to national attention. Helping the Institution reach diverse cultural communities is a major focus of the office, which helps print and broadcast journalists from many backgrounds share the Smithsonian story with tens of millions of people worldwide through news releases, backgrounders, press conferences, publications, photographs, videotapes, logistical support, public service announcements, and advertisements. The office also coordinates Institution-wide information and advertising programs.

In January, the office launched a bimonthly newsletter, *Smithsonian Runner*, which describes activities of the National Museum of the American Indian and other programs of interest to Native Americans. The

publication's editor, a Laguna Pueblo Indian, was supported in part by the Smithsonian Educational Outreach Program. *Runner* goes to more than 400 publications and a network of Native American media professionals and others from tribes across the country. The office held a news conference on May 21 to introduce W. Richard West, Jr., as the National Museum of the American Indian's founding director. Major articles on West and the new museum appeared on radio and in the Associated Press, the *Washington Post*, the *New York Times*, the *Los Angeles Times*, and other media. The office also updated and produced a flyer on "Resources at the Smithsonian for Native Americans."

The office's Black Media Outreach Program convened two meetings of its Ad Hoc African American Media Advisory Committee, which is composed of 10 outstanding African American journalists. The committee reviewed a selection of the Smithsonian's programs and suggested ways to improve communication with the media. In response, the office prepared an extensive



Office of Public Affairs staffers, from left, Jo Ann Webb, executive editor; Robert Tenequer, editor; and Peggy Langrall, assistant editor, work on an issue of the new publication *Smithsonian Runner*. (Photograph by Dane Penland)

media plan to increase the coverage of Smithsonian programs, activities, and resources of interest to African Americans. The office wrote and produced two 60-second advertisements incorporating comments by Smithsonian visitors, which were aired during Black History Month on Washington, D.C., radio stations WHUR and WKYS. Some 1,400 listeners called for information. Other radio advertisements prepared by the office included those promoting the Anacostia Museum's summer exhibition, "Whose Art Is It, Anyway? The Arts in Public Places."

As part of its Hispanic Media Outreach Program, the office coordinated an exhibit and full-page conference booklet advertisement for the eighth annual National Hispanic Media Conference in San Francisco. About 1,000 reporters attended the conference. The office also organized a briefing on the Columbus Quincentenary for the National Association of Hispanic Publications, which pledged its support for publicizing the Smithsonian's impressive array of programs. For Hispanic Heritage Month, the office carried out an extensive publicity campaign, including newspaper and radio advertisements.

The office produced a number of special publications this year, including two supplements in the employee newspaper, the *Torch*, on the Smithsonian's volunteers and on the National Zoo's centennial. The office introduced the newly designed and expanded *Research Reports*, a quarterly newsletter that reports on ongoing research. Brochures for the Smithsonian Marine Station at Link Port and the Conservation Analytical Laboratory were also produced.

The Smithsonian News Service, a free, syndicated feature story service for daily and weekly newspapers, swept the top four awards in the writing competition sponsored by the National Association of Government Communicators. A subscriber survey completed this year indicated extremely high satisfaction by the service's 900 subscribers.

During the year, the office edited and distributed more than 550 news releases, and office staff responded to about 750 inquiries from reporters. Staff members also initiated dozens of media proposals and coordinated media relations on a number of complex stories. For several tense days in December, the office worked with others at the Smithsonian to respond to media inquiries on the fate of a group of Smithsonian

employees who were briefly taken hostage in Panama during the U.S. invasion and later released unharmed. The media also focused unprecedented attention on the challenges facing the Smithsonian as it moves into the twenty-first century, and the office responded by coordinating dozens of interviews with Smithsonian officials. Major articles appeared in the *New York Times*, the *Christian Science Monitor*, the *Washington Post*, *U.S. News and World Report*, and other outlets.

The office organized major publicity campaigns for the "Information Age" exhibition at the National Museum of American History, the launch of the Corporate Associate Program, the initiation of the African American Institutional Study, and the opening of the Smithsonian Information Center.

Visitor Information and Associates' Reception Center

The new Smithsonian Information Center, the keystone of the Visitor Information and Associates' Reception Center's (VIARC) six-year plan to improve information and orientation services for visitors, opened to rave reviews on November 15, 1989. This event also heralded the introduction of computerized reference systems for volunteer information specialists assigned to the center and the acquisition of specially designed office space for VIARC's Public Inquiry Mail and Telephone Services.

The Smithsonian Information Center, located in the Great Hall of the Castle, was funded by leadership grants from the Pew Memorial Trust, the Kresge Foundation, and the Morris and Gwendolyn Cafritz Foundation and through the generous support of the Contributing Membership of the National Associates, the National Board, and others. Operating from 9 A.M. to 5:30 P.M. daily, the center is a multifaceted information and orientation source for visitors to the Smithsonian and provides a wealth of assistance on other popular attractions in the nation's capital.

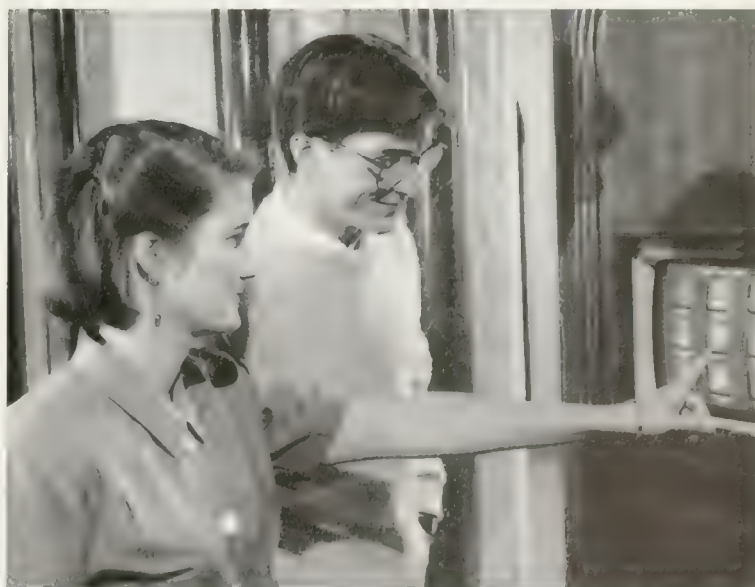
Award-winning information components include an orientation video shown in twin theaters on a staggered schedule throughout the day and an interactive touch-screen program on the Smithsonian in seven languages. Other components include two scale models of Washington's monumental core, two electronic wall maps and interactive touch-screen programs highlighting popular capital attractions, backlit panels featuring Smithsonian facilities, rolling-screen monitors listing daily activities, an Associates' lounge, a central information desk, and an Associates' reception desk. Volunteer information specialists provide direction and assistance throughout the Great Hall.

Access to the center's information components and services was planned to ensure maximum ease of use by the widest possible audience. Visitor traffic flow and building access and egress were improved with the opening of three additional doors, including the South Tower door from the Enid A. Haupt Garden. This entrance was further enhanced by the decorative restoration of the South Tower Room to the ambiance it enjoyed as the 1902 Children's Room.

In its first 10 months of operation, the center was the fourth busiest Smithsonian facility, serving 1,507,351 visitors. Membership sales also increased to an average of 500 a month.

To accommodate expanded public information activities, VIARC's Seven-Day Information Service Unit increased the volunteer information specialist corps to well over 650. As a result of efforts to attract culturally diverse volunteers, 19 percent of the participants in fiscal 1990 training classes represented minority constituencies. Additional volunteer staffing and training were provided for the "Caribbean Festival Arts," "Masterworks of Louis Comfort Tiffany," and "Dinamation: Dinosaurs Alive and in Color" exhibitions, as well as for the Paul E. Garber Facility Open House. With the reopening of the Smithsonian Institution Building, the Castle Docent Program resumed public walk-in tours in the spring.

The Public Inquiry Mail Service received and processed some 47,000 pieces of mail during the year. In addition, some 1,200 information packets were mailed in conjunction with the Smithsonian's efforts to broaden the cultural diversity of its audience. The Telephone Information Service handled in excess of



VIARC staffers Bruce Kirby and Grace Tull try out an interactive video terminal designed for visitors to the new Information Center. (Photograph by Eric Long)

337,000 calls from the public during the year. The volume of calls received in April was the highest ever experienced in one month. The Washington Craft Show, Paul E. Garber Facility Open House, Cherry Blossom Festival, the opening of the National Museum of Natural History's "Dinamation: Dinosaurs Alive and in Color" exhibition, the Hirshhorn's film showing of *Twin Peaks*, and Earth Day together generated 24,343 calls. Throughout the year, comprehensive recorded information was provided on Smithsonian activities for Black History Month, Women's History Month, "Dinamation," Asian/Pacific American Heritage Week, the Festival of American Folklife, and Hispanic Heritage Month. Dial-a-Phenomenon, the popular sky watcher's report, attracted some 39,000 calls.

The Behind-the-Scenes Volunteer Program continued to provide valuable support to the Institution's offices and bureaus, including special translation services. Some 1,213 volunteers provided assistance on both short- and long-term special projects. Minority participation in the total corps of registered and placed volunteers increased from 12.1 percent to 15 percent. VIARC's annual Institution-wide volunteer survey documented that 5,159 volunteers contributed 529,782 hours of service during 1990.

The Information Resources Division absorbed the added responsibility of updating and maintaining all automated information systems in the Smithsonian Information Center and continued to produce in a timely manner its monthly Institution-wide exhibitions directory and calendar of events. The use of a desktop publishing program greatly improved the appearance of these essential in-house resources, as well as that of key VIARC publications. Forty-nine VIARC publications were produced and 15 public information pieces were reviewed for other organizations.

EXTERNAL AFFAIRS

Thomas E. Lovejoy, Assistant Secretary for External
Affairs

The Smithsonian Institution's response to the needs and concerns of its many external constituencies is the primary responsibility of the Office of the Assistant Secretary for External Affairs. The office frames the Institution's goals and impact beyond the National Mall through the supervision of its component units (which included for the first time the media group), through the hosting of diplomatic events and events in honor of the friends of the Institution, and through addressing

Assistant Secretary for External Affairs Thomas E. Lovejoy and screen actor Tom Cruise join forces for the protection of the environment at Earth Day festivities on the National Mall in April 1990. (Photograph by Eric Long)



the role of the Smithsonian in national and international affairs.

The office has directly undertaken a number of initiatives this year. Responding to emerging global change issues, it has linked the Institution's research and education projects to efforts by the Congress, the administration, various federal agencies, nongovernmental organizations, academic institutions, and industry to address impending global change problems.

Of particular importance this year was the appointment of Assistant Secretary Thomas E. Lovejoy to the 13-member President's Council of Advisors on Science and Technology. Other activities of the office included the joint effort with the Smithsonian Tropical Research Institute to facilitate a \$10 million debt-for-nature swap between the United States and Panama; the pursuit of an initiative with the government of Japan to establish a Tropical Forest Management Information Center; cooperation in organizing several Earth Day events on the National Mall with the National Museum of Natural History/National Museum of Man, Congress, and the American Institute of Biological Sciences; and a series of events, with the World Wildlife Fund, for members of Congress and federal agency administrators to address issues such as U.S. energy policy and environmental degradation in Eastern Europe.

Consonant with the Smithsonian's commitment to cultural diversity in the Institution and the world at large, the office organized and presented a session on the environment and human rights of indigenous peoples through the Society for Applied Anthropology at a conference in England. In addition, W. Richard West, Jr., director of the National Museum of the American Indian, has asked Deputy Assistant Secretary for External Affairs Marc Pachter to undertake international planning for the museum, focusing on the presentation of non-U.S. indigenous cultures and the relevance of the museum to indigenous communities throughout the world.

Media Projects

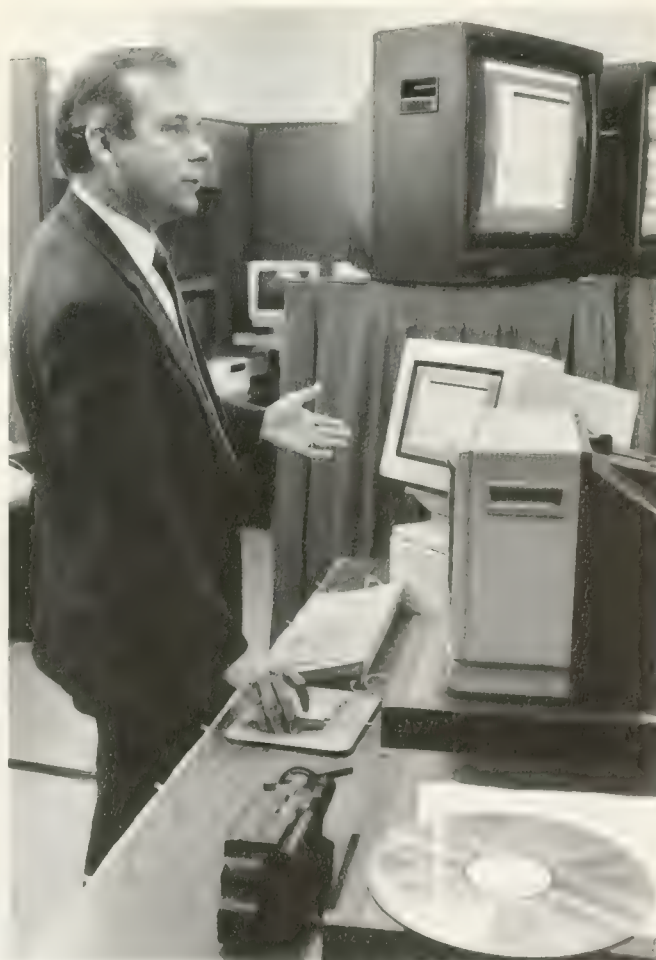
"Invention," the Institution's first major cable television initiative, produced by the Discovery Channel in cooperation with the Smithsonian for a worldwide audience, was in production during the year for an October 2, 1990, premiere. Endorsed by the National Education Association and intended for classroom use, as well as for prime-time cable television broadcast, this 13-program series celebrates humanity's ingenuity and creativity. Programs in the inaugural season of "Invention" primarily feature the collections of the National Museum of American History, but in future years the series may also include other Smithsonian and non-Smithsonian segments.

In keeping with the Institution's goal of cultivating corporate support for media projects, "Invention" is funded entirely by outside sources. Moreover, it is expected to generate significant royalty revenue as it reveals the national collections to more and more of the world.

Also generating revenue to support institutional programs and objectives are the Smithsonian Video Collection; the Smithsonian Laserdisc Collection; the Smithsonian Interactive Compact Disc Series (a collaboration with Phillips N.V.); "Smithsonian World"; "Perspectives on the Twentieth Century with Walter Cronkite," a collaboration with Media Access Corporation; the Smithsonian/Discovery series of interactive educational software; and the Smithsonian/Creative Media Associates collaboration to produce an educational Nintendo cartridge. Efforts to develop a fully coordinated multimedia capability continue under the direction of the deputy assistant secretary for media.

National Demonstration Laboratory for Interactive Educational Technologies

Visitors to the National Demonstration Laboratory (NDL) can learn about interactive educational technologies in an environment that permits hands-on access and encourages discussion and questions. At 17 work stations, visitors are introduced to a wide range of education and training programs that combine computers and multimedia materials, including foreign language, math, medical ethics, art appreciation, substance abuse awareness, nursing care, science, industrial safety, current events, and recent history.



William Lord, vice president of ABC News Interactive, demonstrates the interactive videodisc program about Dr. Martin Luther King, Jr., introduced by his group in January 1990 at the National Demonstration Laboratory.

Office of Membership and Development

The demonstrations incorporate discussions of instructional design, reutilization of existing video materials, the educational benefits of interactivity, and the status of the interactive educational technologies field. Sessions are keyed to the visitor's level of understanding of both technical and instructional issues.

As a national clearinghouse, the NDL has a library of materials about interactive educational technologies. Visitors are welcome to study the collection of books, journals, government and academic reports, and catalogues.

The lab is the only site in the United States at which European PALS-standard disks are available for demonstration. These programs include the British Domesday program and North Polar Expedition. Several interactive programs are on long-term loan from the Department of Defense, including Spanish, Hebrew, and Korean language training.

Representatives of educational organizations are invited to join the NDL's Research Consortium, which is composed of universities and other educational institutions that are leading the way in the field of interactive technologies.

The Office of Membership and Development significantly enhanced its fund-raising capabilities during 1990. Completion of the reorganization begun in 1989 increased efficiency and enabled the office to respond to the growing institutional need for private support. The office has been divided into four units: Individual Giving, Corporate and Foundation Giving, Development Services, and Information. Improvements in information handling, prospect identification and research, and national outreach activities, along with service agreements with each bureau, have boosted fund-raising activity throughout the Institution.

This year, the office has put primary emphasis on planning and initiating a major gifts fund-raising effort to secure annual and long-term support for both unrestricted and restricted purposes, according to the secretary's stated fund-raising priorities. As part of that effort, the National Board is committed to canvassing its membership for major contributions to priority institutional programs. The Regent's Advisory Committee on Planning and Development was also created in 1990.

Another significant new activity undertaken in 1990 was the inauguration of the Smithsonian Salutes! series of national outreach events. In cooperation with the National Board of the Smithsonian Associates and the Contributing Membership Program of the Smithsonian National Associate Program, the office hosted events in Houston, Los Angeles, Palm Beach, and Minneapolis that included area donors, Contributing Members and their friends, and corporate representatives. The events introduced today's Smithsonian and thanked the communities for their past and present support. Additional events are being planned for other locations across the country. In Washington, the office hosted a reception for major donors at the official dedication of the new Smithsonian Information Center in the Castle in conjunction with the Visitor Information and Associates' Reception Center.

The office worked closely with the National Associate Program to further a number of new membership activities begun in 1989 and 1990. Members of the Individual Giving unit and the Contributing Membership Program are collaborating on efforts to increase membership in the James Smithsonian Society, the highest level of Contributing Membership, through the Secretary's Circle, a volunteer network led by National Board member Alexander McLanahan. The Corporate Associ-

ate Program, spearheaded by founding chairman Roberto C. Goizueta of the Coca-Cola Company, garnered 14 members in 1990, including three vice-chairmen. The office also helped the National Associate Program produce a poster promoting private gifts to the Institution for display in the Smithsonian Information Center and other public areas. Other vehicles to raise public awareness of the public-private partnership have been created, including a full-color brochure about the need for private support at the Smithsonian.

During 1990, the Institution received many significant gifts and bequests to further its research and educational goals. This support is continued evidence of the high regard in which the Smithsonian is held by the nation's individuals, foundations, and corporations.

Among the Institution's highest priorities is monitor-

ing, understanding, and arresting deterioration of the global environment, with emphasis on research, conservation, training, and public education related to tropical rainforests. To support this work, the Andrew W. Mellon Foundation gave \$250,000 to the Smithsonian Tropical Research Institute for its tropical paleoecology project and \$170,000 to the National Museum of Natural History for the Biological Dynamics of Forest Fragments program (formerly Minimum Critical Size of Ecosystems). The Pew Charitable Trusts gave \$150,000 toward a \$300,000 pledge to the National Zoological Park for its training program in wildlife conservation and management. The Ethyl Corporation made a pledge of \$300,000 to support the National Museum of Natural History's "Chesapeake Bay Mesocosm" exhibition. The Smithsonian Institution Traveling Exhibition



Craft show volunteers having an old-fashioned slide-project bee on an Arts and Industries Building balcony. (Photograph by Eric Long)

Service received \$100,000 from the John D. and Catherine T. MacArthur Foundation for a Latin American version of the popular exhibition "Tropical Rainforests: A Disappearing Treasure."

The arts at the Smithsonian were also well supported this year by private donors. The J. Paul Getty Trust has provided \$150,000 for the conservation of James McNeill Whistler's Peacock Room at the Freer Gallery of Art. The Cooper-Hewitt National Museum of Design received \$100,000 from the J. M. Kaplan Fund, Inc., for the Cooper Union Legacy Exhibition. The Arthur M. Sackler Gallery received support from the Arthur M. Sackler Foundation for the quarterly journal *Asian Art* and from Mrs. Arthur M. Sackler for a symposium titled "New Perspectives on Chu Culture during the Eastern Zhou Period." Yamanouchi Pharmaceutical Co., Ltd., provided major underwriting for the Sackler's exhibition "Yokohama: Prints from Nineteenth-Century Japan."

The National Museum of American History received unprecedented contributions from more than 20 major communications industry corporations for its new permanent exhibition "Information Age: People, Information, & Technology." In 1990, the exhibition received \$250,000 from IBM Corporation, \$100,000 from Hewlett-Packard, and \$100,000 from the Xerox Foundation. The museum also received a major pledge of \$4 million from the American Chemical Society to underwrite the upcoming exhibition "Science in American Life."

Several of the Columbus Quincentenary programs at the Smithsonian benefited from private philanthropy during 1990. Chief among these is the major exhibition "Seeds of Change" at the National Museum of Natural History, which received a pledge of more than \$1 million from the Xerox Corporation.

Other major gifts received this year include two large bequests: \$509,478 from the estate of Frances B. Ferguson for the Ferguson Endowment and \$100,000 from the estate of Mildred Dassett for the Cooper-Hewitt National Museum of Design. Corporate and foundation gifts included \$260,000 of a \$400,000 pledge from Chevron U.S.A., Inc., to the National Museum of Natural History for the exhibition "Beyond the Java Sea." Lotus Development Corporation gave \$103,000 for the *Starlit Symphony* film in the "Beyond the Limits" exhibition at the National Air and Space Museum. The

American Committee on the French Revolution contributed \$150,000 toward the French portion of the Festival of American Folklife. Boeing Company (through the Seattle Organizing Committee of the Goodwill Games) gave \$137,763 to underwrite "Moscow: Treasures and Traditions," an exhibition being circulated by the Smithsonian Institution Traveling Exhibition Service. From the Pew Charitable Trusts came \$150,000 for an exhibition in the Experimental Gallery, scheduled to open in early 1991. The Alfred P. Sloan Foundation gave \$122,355 for the conclusion of the Video History Program at the National Air and Space Museum. The Institution was delighted to receive a pledge from the Kajima Corporation, which, together with Hitachi Ltd. and the American Family Life Assurance Company, is underwriting a film on Japanese gardens for American and other audiences.

National Board of the Smithsonian Associates

The National Board of the Smithsonian Associates was established in 1971 to bring the Institution into closer association with corporate, professional, community, and cultural leaders from throughout the country. The Institution looks to the National Board for guidance in stimulating appropriate forms of cooperation among these sectors, for assistance with regional Smithsonian activities and educational services, and for private support for these and other programs.

At the board's annual spring meeting, held in the Transco Energy Tower Building in Houston, Texas, Secretary Adams, Assistant Secretary for External Affairs Thomas E. Lovejoy, and Director of Membership and Development Thomas McCance, Jr., reported on institutional activities. Six new board members were elected: Anne Bass of Texas, Fletcher Byrom of Arizona, John Harbert of Alabama, George Mueller of California, Leveo Sanchez of Virginia, and Holley Smith of Montana. Chairman Gay Wray thanked retiring members Alexander McLanahan of Texas, Charley Dickey of Pennsylvania, Joan Donner of Colorado, Howard Love of Pennsylvania, and Charlie Murphy of Arkansas for their service to the board and the Institution. The weekend was hosted by current and former board members Mr. and Mrs. Jack Bowen, Mr. and Mrs. Alfred Glassell, Mr. and Mrs. Gerald Hines, and

Women's Committee of the Smithsonian Associates

Mr. and Mrs. Alexander McLanahan, who arranged visits to several local museums and the Johnson Space Center. Two dinners were held for the board; one at the Houston Museum of Fine Arts included local civic leaders. Former board member James Elkins also hosted a luncheon at his home.

Twenty-nine board members (past and present) and spouses journeyed to the Soviet Union in May. The study trip was led by Assistant Secretary for Research Robert S. Hoffmann and Mrs. Hoffmann, who with their knowledge of Russia helped to make the trip more meaningful.

The board's annual meeting was held in Washington, D.C., September 21–23, 1990. An orientation session on September 21 acquainted old and new members with the workings and breadth of the Smithsonian. That evening the joint National Board–James Smithsonian Society dinner was held at the National Museum of American Art and the National Portrait Gallery. The collection of American folk art given by Smithsonian medalist Herbert Waide Hemphill, Jr., to the National Museum of American Art was on display. At the dinner, Sam DeVincent of Fort Wayne, Indiana, received the James Smithsonian Society Founder Medal for his significant contribution of sheet music to the collections in the history of American music at the National Museum of American History. At the September 22 meeting, members and spouses heard about the Institution's national and international outreach from Deputy Assistant Secretary for External Affairs Marc Pachter, Smithsonian Institution Traveling Exhibition Service Director Anna Cohn, and Smithsonian National Associate Program Assistant Director Stephen Pike. A dinner for present, past, and honorary board members was held at the National Air and Space Museum and honored the founding members of the board. On September 23, Secretary Adams, Treasurer Ann Leven, and Acting Under Secretary Nancy Suttentfield covered current areas of major concern to the Smithsonian.

The 63 active members, 50 resource members, and 28 sustaining members of the Women's Committee of the Smithsonian Associates continued to support and advance Smithsonian interests through fund-raising events and project awards. Committee members contributed more than 7,000 volunteer hours to the Institution this year. Net proceeds from the 1989 Washington Craft Show and the annual Christmas Dinner Dance enabled the committee to fund 48 projects in 19 Smithsonian bureaus for a total of \$192,099. Projects were supported in amounts from \$900 to \$12,000. An additional \$40,000 was earmarked for the Women's Committee Endowment Fund.

The projects supported reflected the committee's commitment to education, outreach, and research at the Smithsonian. Awards supported speakers for a doctent training program at the Hirshhorn Museum and Sculpture Garden, revision of the "Shapes and Colors" tour for the mentally disabled at the National Air and Space Museum, and the addition of open captions for deaf visitors to educational videos at the National Museum of African Art. The National Museum of American History received funding for a conservation assessment study of objects in the Duke Ellington Collection; the transcription of tape recordings for "An Oral History of Southern Agriculture"; and the identification, arrangement, and housing of photographs of foreign gold coins in the J. K. Lilly, Jr., Collection.

Awards to the National Museum of Natural History supported the production of a videotape on geologic time and the collection of rock sections for the "Tower of Time" exhibit; the development, production, and distribution of an instruction kit on Southeast Asian cultures; and the curation of *Lepidoptera* slides. The National Zoo was given support to purchase three spotting scopes that enable visitors to view a newborn gazelle, bear cubs, and free-ranging monkeys; create new school loan kits for elementary school teachers; and develop a teaching guide on the contribution of the Algonquian Indians to modern-day use of plants for food and medicine.

Other grants were made for the preparation of a *catalogue raisonné* of the works of Rembrandt Peale; the duplication and preservation of Antoine Sevruguin photographs in the Freer Gallery of Art/Arthur M. Sackler Gallery archives; the purchase of volume 3 of a rare set of nineteenth-century furniture and drapery designs by

Smithsonian National Associate Program

the Cooper-Hewitt National Museum of Design branch library; and the creation of facsimile mylar copies of deteriorating architectural drawings and plans. In addition, support was given for the construction of the Java History Trail at the Smithsonian Environmental Research Center and the development of an outdoor living marine exhibition at the Smithsonian Tropical Research Institute. The Smithsonian Astrophysical Observatory received funding for educational information sheets on astronomy, and funding was provided for instructional literature and supplies for workshops held in conjunction with the Smithsonian Institution Traveling Exhibition Service's exhibition "Climbing Jacob's Ladder."

The 19th annual Christmas Dinner Dance was held in the rotunda of the National Museum of Natural History. This gala evening and established Smithsonian tradition was again a highly successful fund-raising event.

The 1990 Washington Craft Show featured 100 outstanding crafts artists from 29 states who were selected by a distinguished panel of jurors from more than 1,200 applicants. A preview reception and silent auction held in conjunction with the craft show raised additional funds for the Smithsonian.

Serving more than 2 million members, the Smithsonian National Associate Program offers innovative educational opportunities throughout the nation, expanding the boundaries of the Institution to encompass all 50 states. The program's far-flung membership is kept abreast of the Institution's activities through *Smithsonian* magazine and the newsletter *Smithsonian Traveler*. In cooperation with other Smithsonian bureaus, the program has organized a diverse range of activities for members. As a result, the program has, since its beginning in 1970, fostered a strong national constituency for the Smithsonian's work while establishing itself as an important source of unrestricted trust fund income.

A sampling of the activities and accomplishments of the program's six units follows.

Contributing Membership

Contributing Membership grew significantly in fiscal 1990, from 52,000 to 62,000 member households. Contributing Members help support the Institution's work with annual dues and gifts in response to special fund-raising appeals, as well as with matching contributions from their employers. This year, Contributing Membership net income reached \$4 million, a 40 percent increase over fiscal 1989.

Members participate at one of six membership levels: Supporting (\$600), Donor (\$125), Sponsoring (\$300), Sustaining (\$600), Patron (\$1,200), or the James Smithsonian Society (\$2,000). In return, they receive a charitable tax deduction and a range of tangible benefits. For the first time in 1990, all members received the quarterly publication *Smithsonian Institution Research Reports*.

Contributing Members participate annually in a variety of exclusive Smithsonian programs. In October 1989, 110 members journeyed to South America with Thomas E. Lovejoy, assistant secretary for external affairs, Michael H. Robinson, director of the National Zoological Park, and other renowned scholars on a three-week study tour of the Amazon and Orinoco rivers. During the fall 1989 and spring 1990 sessions of the Contributing Membership office's popular "Smithsonian Treasures" program, 180 members from across the United States toured behind the scenes in many of the Institution's museums and research facilities. In

spring 1990, members studied American art at the National Portrait Gallery, National Museum of American Art, and National Museum of American History during the first Contributing Membership "Smithsonian Focus" study program.

The Contributing Membership office also launched a new organization of fund-raising volunteers in fiscal 1990. The Young Benefactors of the Smithsonian Institution was created to involve individuals between the ages of 25 and 45 in raising unrestricted funds for the Institution, increasing awareness among young professionals of the Smithsonian's goals, and building a foundation for future Smithsonian support.

James Smithson Society

Members of the James Smithson Society again participated in a special weekend of activities held in late September in conjunction with the fall meeting of the National Board of the Smithsonian Associates. During the weekend, the society's Founder Medal was presented to Sam DeVincent in recognition of his extraordinary contributions to the collections and programs in the history of American music at the National Museum of American History.

The Smithson Society awarded grants totaling \$444,015 this year to support the following Smithsonian projects and acquisitions:

National Museum of African Art: To acquire a Teke sculpture from the Republic of Congo.

National Air and Space Museum: To produce a documentary film showing the benefits of scientific education for young women.

National Museum of American Art: To research, develop, and produce an introductory audiovisual presentation for the exhibition "The West as America, 1820-1920."

National Museum of American History: To purchase a typesetting system for the exhibition and publication divisions; to publish an exhibition booklet, *From Parlor to Politics*; and to produce an informational fund-raising video on the history of jazz programs.

Hirshhorn Museum and Sculpture Garden: To produce an audiovisual visitor orientation program for the collection of nineteenth- and twentieth-century sculpture.



Henry Elliot, curator at the National Museum of African Art, narrates the Yoruba tale of "shango" (the god of thunder) while Smithsonian Contributing Members observe the century-old wood dance wand on view in the "Yoruba: Nine Centuries of African Art and Thought" exhibition. (Photograph by Richard Strauss)



Associates attend a 20th-century furniture design seminar of the Smithsonian National Associate Program at the "Out on a Limb" workshop in Arlington, Virginia.

National Museum of Natural History: To produce a press resource guide and to support the 1991 undergraduate summer intern program.

National Zoological Park: To produce a migratory bird information kit to facilitate formation of a conservation network.

Smithsonian Astrophysical Observatory: To distribute the movie *Mapping the Universe* to students and the general public.

Smithsonian Institution Libraries: To support the exhibition "Nusantara: Lands and Peoples of Indonesia."

Smithsonian Tropical Research Institute: To improve and manage the Fish Skeletal Reference Collection in the Archaeozoology Laboratory.

Smithsonian Institution Traveling Exhibition Service: To subsidize production and transportation costs for the exhibition "Plains Indian Art."

Office of Folklife Programs: To support research and preparation of *Smithsonian Cookbook Sampler: Recipes from the Festival of American Folklife*.

Office of Public Affairs: To publish a new booklet describing Smithsonian research behind the scenes.

Office of the Assistant Secretary for Museums: To research a new book, *Museum Careers*, for students, counselors, and museum professionals.

Office of Exhibits Central: To purchase production software for the fabrication unit.

Office of Telecommunications: To produce a new national radio series, "Rediscovering America."

Corporate Associate Program

The Smithsonian Corporate Associate Program was launched in January 1990 with the announcement that Roberto C. Goizueta, the chairman and chief executive officer of the Coca-Cola Company, would serve as the program's founding chairman. Goizueta subsequently recruited three other chief executives as vice-chairmen: August A. Busch III, Anheuser-Busch Companies; Harold A. Poling, Ford Motor Company; and Richard J. Mahoney, Monsanto Company.

Corporations are invited to become members at two levels, \$25,000 or \$10,000. Among the 1990 founding members were the General Electric Company, Walt Disney Company, Dow Chemical Company, Bell South Corporation, Capital Cities/ABC, McDonald's Corpo-

ration, Lee Enterprises, Eaton Corporation, D'Arcy MB & B, and Needham DDB. Through their investment in the Smithsonian, these and other companies demonstrate the critical role an enlightened private sector can play in advancing public good.

U.S. and International Events

U.S. and International Events, now in its 15th year, provides educational events that highlight the research and collections of the Smithsonian for National Associate members and the general public nationwide. Each year, Smithsonian curators, scientists, and research associates present lectures, seminars, hands-on workshops, and concerts in approximately 25 U.S. cities.

Grand Junction, Colorado, was one of the cities that presented Smithsonian events during the past year. The series highlighted Native American culture and inspired the cosponsoring organizations to develop a four-week festival of Hispanic art, history, and culture. This series of events marked the program's first visit to Grand Junction. Other cities visited for the first time in 1990 were Albany, New York; Norfolk, Virginia; Fullerton and Santa Ana, California; Fort Collins, Colorado; Burlington, Vermont; Salina, Kansas; Concord and Manchester, New Hampshire; and Toledo, Ohio.

The success of activities organized by U.S. and International Events depends in part on collaborations with local and national organizations. During 1990, the program collaborated with 75 local organizations throughout the country, including museums, universities, zoological parks, and botanical gardens.

Twenty-six new programs were developed this year. Among them were "Inside Active Volcanoes," by Richard Fiske and Mary Dillon; "Birdlife in the Yucatán," by Russell Greenberg; "Feminine Image in African Art," by Roslyn Walker; and "Concepts of Beauty in the Arts of Sub-Saharan Africa," by Christine Mullen Kreamer.

In addition to presenting programs around the country, U.S. and International Events coordinates international series. During 1990, the program visited Pontificia Universidad Católica in Santiago, Chile, five times with 14 events.

Smithsonian Research Expeditions

The purpose of the Smithsonian Research Expeditions is twofold: to offer Associate members the opportunity to become personally involved with the Institution by working closely with Smithsonian professionals and to provide Smithsonian scientists with an additional source of field assistance and funding for their research projects. One hundred sixty Associate members participated in the 1990 Research Expeditions, contributing more than \$200,000 and providing more than 100,000 volunteer hours.

One expedition held this year was part of the Yucatán project led by James Lynch and Dennis Whigham from the Smithsonian Environmental Research Center. Two teams accompanied Lynch and Whigham to the Yucatán Peninsula to assist in the study of bird life and vegetation and to examine the effects of Hurricane Gilbert on these populations.

Smithsonian Study Tours and Seminars

Smithsonian Study Tours and Seminars organizes educational programs that mirror the many and varied interests of the Institution. In 1990, more than 6,000 National Associates participated in 175 foreign and domestic tours and seminars.

Several new foreign study tours were offered this year. For the first time, Associates visited Trinidad and Tobago, focusing on the area's rich bird life. Associates also traveled by rail on the Far East Express from Singapore through the Malay Peninsula to Southern Thailand. Two important anniversaries were observed. Associates toured special museum exhibitions and visited sites in the Netherlands and France related to the life and work of Vincent Van Gogh on the centennial of his death. Seventy Associates attended activities in England commemorating the 50th anniversary of the Battle of Britain.

More than 900 Associates boarded specially chartered river and ocean vessels in various parts of the world. Participants again cruised the Red Sea, making inland journeys to Luxor and Petra. One hundred thirty-six Associates journeyed on the luxurious new *Seabourn Spirit* around Cape Horn. Other groups explored the coast of Turkey aboard the tall ship *Sea*

Cloud, saw the beautiful banks of the Upper Volga, newly opened to foreigners, and discussed historic changes in Eastern Europe on a Danube cruise from Romania to Germany.

Foreign residential seminars were held at Trinity College, Dublin, at the American University in Cairo, and in Florence. Domestic seminar programs in 1990 featured an impressive, hand-picked faculty and offered special access to Smithsonian collections, major exhibitions, research facilities, and skilled curatorial staff. Eight seminars were held in Washington, D.C., including "America's Future in Space," "American Coins and Currency," "150 Years of American Art," "Twentieth-Century Furniture" and "Animal Communications."

Beyond Washington, 60 Associates visited the Smithsonian's Whipple Observatory in Arizona for the seminar "The New Astronomies." Marine scientists welcomed Associates for the first time to the Smithsonian Marine Station at Link Port in Florida for studies in marine biology. Santa Fe, New Mexico, offered a unique setting for the study of Southwestern art and archaeology.

More than 60 Domestic Study Tours in 1990 provided Associates with a variety of opportunities to experience the natural wonders and regional heritage of America. Active outdoor tours help to increase understanding and appreciation for conservation of natural resources. Popular hiking programs were repeated to Yosemite, Big Bend, Bryce Canyon, and Zion National Parks. Associates camped in Idaho while rafting the Salmon River and explored the Grand Canyon while running the rapids on the Colorado River. A trip to wildlife refuges in South Texas included a side trip to Arkansas where the endangered whooping crane spends the winter. Learning techniques for using binoculars and for locating and identifying birds introduced many Associates to a lifelong hobby. A new family-oriented nature program in the Colorado Rockies was enthusiastically received by a group ranging in age from 7 to 70.

Weekend programs continue to be popular with Associates interested in a shorter, less expensive study tour. In addition to art and architecture programs in New York, Chicago, and Philadelphia, four new tours to the South Rim of the Grand Canyon were offered, featuring nature walks and lectures.

Smithsonian Resident Associate Program

The Smithsonian Institution's privately supported cultural, continuing education, membership, and public outreach arm for metropolitan Washington, D.C., is the Resident Associate Program (RAP). This year, RAP continued to build on its tradition of bringing to its constituencies a rich mix of cultural and educational programs, while increasing its emphasis on multicultural diversity and worldwide environmental concerns consonant with the interests of the Institution.

In 1990, audiences could choose from programs as diverse as the electrifying music of Brazilian guitarist Toninho Horta; a stirring performance of *Audience*, a play written by Czechoslovakian President Vaclav Havel; and a historic dialogue between curator extraordinaire Walter Hopps and premier art dealer Leo Castelli. The program offered 1,928 high-quality activities, attended by more than 323,000 adults and young people. Membership in the Resident Associate Program numbers 56,000, representing 106,000 persons, in addition to area contributing members who participate avidly.

During this fiscal year, RAP began to lay the groundwork for the fall 1990 celebration of its 25th anniversary, planning more than 25 programs that brought a dazzling array of luminaries to Washington. The celebration got off to a grand start with a generous gift from Riggs National Bank, quickly matched and surpassed by contributions from RAP members, Contributing Members, and corporate donors.

As part of its 25th anniversary celebration, RAP commissioned internationally acclaimed artist Jacob Lawrence to create *On the Way*, a 12-color lithograph in a signed and numbered edition of 100. Well-known children's book illustrator Tomie dePaola was also commissioned to create a festive watercolor-and-pencil poster in a signed and numbered edition of 500.

RAP's extraordinary combination of program excellence and community outreach continued to attract the attention of both local and national media. Its monthly publication, the *Smithsonian Associate*, won first prize for newsletters in the Blue Pencil Awards of the National Association of Government Communicators. The 24th annual Smithsonian Kite Festival, cosponsored by RAP and open to members and the general public, brought 5,000 people to the National Mall to fly their colorful creations and received major local and national media attention. RAP's premiere of the Oscar-winning



Smithsonian photographer Eric Long captured his daughters Jeannie (foreground) and Meghan on film during the Kite Festival in April.

film *Glory*, enlivened by the attendance of actors in Civil War regalia, drew national television coverage.

Cooperation with Smithsonian Bureaus and Offices

RAP joined forces with Smithsonian museums to present programs tied to major exhibitions. Among the cosponsorships were an adult course in Buddhist art with the Arthur M. Sackler Gallery, complementing the exhibition "The Noble Path: Buddhist Art from South Asia and Tibet"; discussions with actor Douglas Fair-

banks, Jr., and veteran journalist Edward P. Morgan conducted by Marc Pachter, biographer and assistant director of the National Portrait Gallery; and a four-part lecture series, *Talks on the Wild Side*, with the World Wildlife Fund and the National Zoological Park. An adult course on the exhibition "Icons: Ideals and Power in the Art of Africa" and a lecture by Rowland Abiodun, both sponsored with the National Museum of African Art, enhanced the exhibition "Yoruba: Nine Centuries of African Art and Thought." A course complemented the Renwick Gallery's exhibition "Masterworks of Louis Comfort Tiffany." An all-day seminar with the National Museum of Natural History on the secrets of ancient Egypt was based on the exhibition "The First Egyptians." With the National Museum of American Art, a studio arts workshop on painted furniture was held in coordination with "Treasures of American Folk Art." Evenings with contemporary artists Donald Sultan and Jeff Koons and museum director, author, and lecturer Henry T. Hopkins were co-sponsored with the Hirshhorn Museum and Sculpture Garden. Alternative strategies for political and social reform were the focus of a powerful all-day seminar in conjunction with the Kennan Institute for Advanced Russian Studies, Woodrow Wilson International Center for Scholars. Brian Duff, special assistant to the director of the National Air and Space Museum, dazzled RAP audiences with a preview of the museum's ambitious new film, *The Blue Planet*.

RAP made beautiful music with the Hirshhorn Museum and Sculpture Garden's Twentieth-Century Consort series. The Smithsonian String Quartet, the Smithsonian Chamber Orchestra, the Smithsonian Chamber Players, and the Castle Trio performed again under National Museum of American History and RAP auspices.

Outreach

Service to the community is a RAP hallmark. RAP's Afro-American Studies Department, with the assistance of grants from the Smithsonian's Educational Outreach Program and the Hattie M. Strong Foundation, began a pilot program, "Project Excellence in Afro-American Studies," to encourage African American high school students to explore their heritage as reflected in the arts, humanities, and sciences. The pilot project offers

26 selected at-risk high school students in the Washington metropolitan area an opportunity to undertake intensive summer study of the comprehension and criticism of African American literature under the tutelage of a college-level instructor.

Each year, RAP's Discover Graphics program involves 200 area public high school students and their teachers in the art of printmaking, with free instruction on fine Smithsonian presses. The annual juried exhibition of student prints was mounted this past year in the Escalator Gallery of the S. Dillon Ripley Center.

Another annual outreach effort is the tuition-free scholarship program for Young Associate and adult courses, awarded through the D.C. public school system. In fiscal 1990, 101 inner-city young people and 220 adults received scholarships.

Outside Collaboration

Prestigious organizations that worked with RAP to create exciting programs in fiscal 1990 included the American Institute of Architects, National Trust for Historic Preservation, American Chemical Society, National Aeronautics and Space Administration, National Learning Center of the Capital Children's Museum, Meridian House International, and the publishing house Farrar, Straus, and Giroux. An impressive lineup of legal experts took part in a course cosponsored by the Courts, Lawyers, and the Administration of Justice Section of the District of Columbia Bar, which gave a behind-the-scenes look at the practice of law in Washington. The trade secrets of 25 famous interior designers were revealed in an unprecedented six-session course presented in conjunction with *Architectural Digest* magazine, moderated by Editor-in-Chief Paige Rense.

The Asia Society of New York cosponsored "Shomyo," an unforgettable performance of sacred ritual chants of Japanese Buddhism. RAP and District Curators presented the Washington, D.C., debut of the contemporary jazz octet Eight Bold Souls. For the third year, the Beethoven Society of Washington, the Duke University-affiliated Thelonius Monk Institute of Jazz, and RAP cosponsored the popular Thelonius Monk International Jazz Piano Competition.

In an innovative move, RAP joined forces with the Teaching Company to initiate *Learning with Superstars*

of the College Classroom. The four intensive weekend seminars, conducted by outstanding professors from leading universities, are videotaped for distribution to schools and colleges nationwide.

Afro-American Studies

RAP continued to focus educational and membership efforts on Washington's African American community, with each RAP department presenting programs that brought the African American experience to life. The Afro-American Studies Department made great strides in fiscal 1990 toward realizing its goal of increasing African American participation. With a new structure and staff, it expanded its curriculum significantly and produced more varied programs. Attendance at Afro-American programs was approximately 50 percent higher than in fiscal 1989. Adult courses included "Buried Heritage: The Archaeology of African American Life" and "New Roots: The What and How of African American Genealogy Today." Headliners included Billy Taylor, Damon Evans, Kent Jordan, Nancy Wilson, the Louisiana Repertory Jazz Ensemble, the Keter Betts Trio, the Georgia Sea Island Singers, the Peabody Ragtime Ensemble, and actor John Amos. Memorable lectures were given by U.S. Representative Major Owens (D-N.Y.) and by well-known writers Itabari Njeri, Carlos Moore, Ntozake Shange, John Wideman, and Ishmael Reed.

Campus on the Mall

Through the Smithsonian Campus on the Mall, RAP provides the only Institution-wide avenue for continuing education in the arts, humanities, and sciences. Six- to eight-week lecture series and intensive weekend courses are offered in four terms each year. In 1990, RAP expanded and enriched this program, attracting an average of 5,000 participants per term to 185 programs and many more to individual sessions. The program's gross income surpassed \$1 million for the first time.

Capitalizing on the success of the Western civilization and Latin American certificate of participation programs held during the past three years, RAP

launched a new certificate series this year on music connoisseurship. The certificate is awarded to participants who take the required five- to seven-course curriculum within a four-year period. The University of Maryland's University College awarded academic credit for several Campus on the Mall courses.

RAP's continuing collaborations with embassies resulted in such well-attended programs as "Denmark in Perspective: Great Danes and Their Great Friends," which included appearances by the inimitable Victor Borge, Garrison Keillor, and the world-famous Kontra Quartet.

Studio Arts

The Studio Arts Department presented 222 classes and workshops in 1990, attended by nearly 18,000 participants. The programs, offered in four terms, are taught by professional artists and other experts and feature hands-on experience. The photography program, based in RAP's state-of-the-art photography laboratory, continued to be a favorite. A significant computer graphics symposium, "Infinite Illusions: The World of Electronically Created Imagery," was the highlight of the year. Classes in wearable art, neon art, *trompe l'oeil*, and stone carving were well received.

Lectures, Seminars, and Films

Lectures, weekend seminars, and premieres of major films filled Smithsonian auditoriums to capacity throughout the year, as RAP invited distinguished scholars and experts to speak on a range of current topics from arts to zoology. A total of 35,000 people attended 124 lectures; 3,200 attended 21 seminars; and 13,800 attended 46 films. Lecturers included China historian Jonathan Spence, Pulitzer Prize winner Stanley Karnow, anthropologist Donald Johanson, art historian and curator Kirk Varnedoe, mystery writer Margaret Truman, poet Lawrence Ferlinghetti, novelist Alex Haley, Judge Robert Bork, and cartoonists Pat Oliphant and Jules Feiffer. Assistant Secretary for External Affairs Thomas E. Lovejoy led a symposium on global conservation; the National Geographic Society cosponsored a series on recent changes in Eastern Europe; and

the World Wildlife Fund and the Audubon Naturalist Society joined to sponsor an animal conservation series.

Four Singles' Evenings lecture series attracted nearly 5,000 participants in equal numbers of women and men. The Tuesday Mornings series for retirees averaged more than 300 persons in each of three series of six lectures.

RAP presented spectacular Washington premieres of the films *Glory*, *Henry V*, and *The First Emperor of China*. In addition, Liv Ullman charmed her RAP audience at the Washington premiere of her latest film, *The Rose Garden*. RAP offered myriad international films throughout the year, including classics like *Nosferatu* and *Wings* (with organ music by Radio City Music Hall organist Lee Erwin), and multicultural offerings, including a film series on Native Americans.

Performing Arts

More than 30,000 people attended 115 RAP performances this year. They enjoyed the Smithsonian debut of the Washington Guitar Quintet and laughed at Joan Cushing's musical revue, *Mrs. Foggybottom and Friends*, which skewered the body politic with outrageously sharp and witty lyrics.

RAP's international offerings included Sukay, a group of musicians from South America, performing traditional music from Bolivia, Peru, and Ecuador; an ensemble of performers from the city of Sunda in Indonesia; the Women of the Calabash, saluting Black History Month with a performance of traditional African American music with a contemporary twist; the dazzling Spanish Dance Society USA; and the Jiving Lindy Hoppers from England, unique masters of the lindy hop and the jitterbug.

RAP continued to present great classical music performed by such impeccable artists as Menachem Presler, the Grammy award-winning Emerson String Quartet; the Twentieth-Century Consort; the Pro Musicis Foundation Series featuring young artists; and the International Poetry Forum. Jazz was well represented by the Warren Vache Quintet and Ken Peplowski, while bluesman and songwriter Henry Townsend had the "Tears Come Rollin' Down" in a program of country blues cosponsored with the D.C. Blues Society.

Study Tours

In 1990, some 16,000 people participated in 525 study tours. From Smithsonian exhibitions to historic sites, nature preserves, Broadway, and beyond, RAP participants traveled in search of new experiences expertly presented. Events ranged in length from local walking tours to out-of-town overnight trips. Some of the most popular programs included RAP's in-depth study tours of Civil War battlefields; a trip to historic Beaufort, South Carolina; and excursions to New York to see major museum exhibitions and Broadway hits. Free tours were also offered to RAP members each month.

Tours of Washington artists' studios and galleries, visits to historic African American churches, boat trips on the Chesapeake Bay, birding excursions, star-gazing in the Blue Ridge mountains, spelunking in the Shenandoah, and bus trips to craft fairs and historic houses in nearby states all attracted enthusiastic participants, as did RAP's popular excursions along the Chesapeake and Ohio Canal and local rail lines.

Young Associates and Family Activities

More than 13,000 young people aged 4 to 15, along with parents and other family members, participated in a total of 209 activities. Such perennial favorites as the Halloween costume party, the winter holiday film and party, and the summer "Evening Picnic at the Zoo" attracted enthusiastic participants of all ages. The Kite Festival drew visitors from 33 states. RAP celebrated Children's Book Week with the world premiere of the film *Ashpet: An American Cinderella* by noted filmmaker Tom Davenport. And the spirit of *glasnost* became a reality for young people who spent a day with children of the Soviet Embassy, met cosmonaut Valeriy Kubasov at the Apollo-Soyuz exhibit, or celebrated—UNICEF's International Children's Day at the Czechoslovakian Embassy. The highly successful Smithsonian Summer Camp sizzled with 28 sessions of such fun-filled learning experiences as "Moon Travelers," "Super Sleuths," and "Mountain Music, Mountain Crafts."

Discovery Theater

During its 12th season, Discovery Theater offered 400 performances for 71,751 young people and their families. Ten productions were presented, all with learning guides. In February, to celebrate Black History Month, Discovery Theater produced "We the People," a dramatic reenactment of the historic debate between black abolitionists Frederick Douglass and Charles Lenox Remond. The production was mounted in collaboration with the National Park Service, Howard University, and the Duke Ellington School of the Arts. Discovery Theater expanded its season by offering well-attended and well-received summer performances during July.

Volunteers

RAP's more than 400 volunteers were recognized for their significant contribution of time, talent, and energy at a reception held at the Arthur M. Sackler Gallery last fall. Assisting as monitors for programs, as well as providing essential office support, RAP volunteers performed well over 26,000 hours of invaluable service last year.

Reflecting the diversity of disciplines represented at the Smithsonian, legislation monitored by the Office of Congressional Liaison covered several broad issues. Foremost among the legislative efforts initiated by the Board of Regents during 1990 was the bill to create a Smithsonian Institution Senior Service, authorizing parallel procedures and incentives for all Smithsonian senior-level executives, managers, scholars, and researchers. The office continued to represent Smithsonian priorities in museum collections care through such facilities expansion as the extension to the National Air and Space Museum at Washington-Dulles International Airport. Ongoing issues related to the establishment of the National Museum of the American Indian, and initiatives in biological diversity also required institutional communication with Congress.

Office of Special Events

The Office of Special Events organizes events and programs throughout the Smithsonian that are instrumental in developing and maintaining relationships with constituencies and support groups. In 1990, the office coordinated several hundred activities with other Smithsonian offices, corporations, and outside groups whose missions coincide with those of the Institution.

The events and programs were diverse. They included involvement in the annual Martin Luther King, Jr., Day observation, Earth Day, the secretary's staff holiday party, the I Have A Dream Foundation awards, the unveiling of a bust of Secretary Emeritus S. Dillon Ripley, the Marconi International awards dinner, and the World Economic Forum reception and dinner for donors and lenders preceding the opening of "Yokohama: Nineteenth-Century Prints from Japan" at the Arthur M. Sackler Gallery.

The office has advised and assisted staff members working on new development and membership initiatives, such as Smithsonian Salutes! receptions in Houston, Los Angeles, Palm Beach, and Minneapolis for donors, Contributing Members, and their guests, as well as a reception for Native Americans in Santa Fe.

The office also served as a clearinghouse for more than 1,000 telephone requests from outside groups that wished to cosponsor an event at the Smithsonian and use the Institution's facilities.

Office of Telecommunications

During 1990, the Office of Telecommunications (OTC) continued to extend the Smithsonian's reach through electronic media. Produced in close cooperation with curators, historians, and scientists, the office's programs explored a range of Smithsonian interests and captured many top awards. The office produced or developed programs focusing on the importance of biological diversity and the richness of the nation's multicultural heritage. New productions also included the Institution's first "videowall," state-of-the-art interactive videodiscs, and numerous programs for exhibitions and broadcast.



The Smithsonian's first multiscreen videowall, *The New Age*, created under the supervision of the Office of Telecommunications, premiered in May in a new exhibition at the Museum of Natural History. (Photograph by Eric Long and Jeffrey Tinsley)

Program Production

The office produced the Smithsonian's first "videowall" presentation, providing a fitting close for the exhibition "Information Age: People, Information, & Technology" at the National Museum of American History. Presented on 12 screens, the program repeats the main themes of the exhibition, stressing that computers and information-age machines are tools for human use.

Working with the International Center, the office created a video based on the conference "The Global Environment: Are We Overreacting?" The program, narrated by John Chancellor of NBC News, was distributed to newspaper editors and television news directors around the country, reinforcing the need to focus attention on crucial environmental issues.

In collaboration with the National Museum of Natural History, the office produced four pilot segments for "Natural History Update," a series of short features conceived by museum Director Frank Talbot. Topics in this pilot series included the discovery of a mosasaur fossil in Oxon Hill, Maryland, and the damage that Hurricane Hugo caused to Puerto Rican forests. The museum is actively seeking funds to continue the series in cooperation with other museums around the country.

New Smithsonian interactive videos and an orientation video, produced by the office for the Visitor Information and Associates' Reception Center (VIARC), premiered in November 1989 with the opening of the Smithsonian Information Center in the Castle. Designed to help visitors plan their museum tours, the programs have won a number of awards. With VIARC, the office launched an effort to market the 20-minute orientation film as a home video beginning in fiscal 1991.

The weekly "Radio Smithsonian" series now airs on 90 radio stations nationally, reaching a potential weekly audience of 4 million people. Its programs focus on exhibitions, research, and performance activities throughout the Institution and continue to garner important awards.

Program Development

The office developed plans for a major film to acquaint American audiences with the historical and cultural sig-

nificance of Japanese gardens and their importance in Japan's landscape. Funded by the Kajima Corporation, Hitachi Ltd., and the American Family Life Assurance Company, this one-hour film is being produced in conjunction with the Arthur M. Sackler Gallery. It is intended for both broadcast and educational use. Shooting began in the fall of 1990, with completion targeted for late 1991.

The office has joined with the Native American Public Broadcasting Consortium to produce a 13-part radio series looking at the Columbus encounter and its aftermath from the Native American perspective. The Corporation for Public Broadcasting has awarded \$224,000 toward production and distribution of this special Quincentenary series. Noted Native American producer Peggy Berryhill is the coordinating producer, working with OTC staff. The series will air on public radio starting in early 1992.

Working with the deputy assistant secretary for media, the office developed production, financial, and marketing plans for new programs in the Smithsonian Video Collection. Future programs will be targeted for broadcast, as well as for the home video market. The Smithsonian obtained all rights to the first five programs in the series from Eastman Kodak, the original distributor, and early sales results were promising.

Marketing

The office placed increased emphasis on marketing and promotion in 1990. The staff began implementing a broad plan for the sale of an earlier OTC film, "The Movie Palaces," to Smithsonian audiences through the Museum Shops and to a general audience through mail-order catalogues and historic preservation groups. Detailed strategies were completed for the marketing and promotion of the entire Smithsonian Video Collection, as well as for the one-hour environmental program "The Earth in Our Hands." These efforts will help ensure greater visibility and maximum revenues for Smithsonian programs and help support future productions.

Smithsonian Institution Press

As recently as the 1970s, the Smithsonian Institution Press was, as it had been for its first century and a quarter, a small office publishing a handful of books, each reflecting the work of a few of the Institution's scholars and having little impact on the academic world or among the wider public. Today the Press, with an active list of 500 titles, is a full-fledged publishing house competitive with the top university presses worldwide. Reviews of its books and recordings confirm the Press as an important contributor to the world of academic publishing, as well as to a wider group of sophisticated readers attracted by serious thought and scholarship. Although the Press cannot reach all audiences, it does act on its responsibility to fulfill the Institution's goal of diffusing knowledge among as broad a spectrum of the public as possible. At the same time, it maintains standards of excellence that give its books and recordings the right to bear the Smithsonian name.

The Press is composed of the University Press, Smithsonian Books, the Smithsonian Collection of Recordings, and the Book Development Program. In addition to the 120 books and recordings issued this year, another 250 publications were produced as part of the Press's ongoing service to Smithsonian bureaus and offices. Press publications thus include research monographs, technical and scientific series, exhibition catalogues, trade books, sound recordings, archival videodiscs, videotapes, and more. In the process, the Press provides a full range of publishing functions, including editing, design, proofreading, production, marketing, distribution, and promotion.

University Press

The University Press acquires, publishes, and markets trade books for the scholarly reader and for the serious but less specialized reader on subjects related to Smithsonian activities and interests. It also carries out a number of publishing functions for the Institution at large, including the federally funded *Contributions and Studies* series in nine disciplines, *Smithsonian Year*, *Smithsonian Year Supplement*, the *American Historical Association Annual Report*, and booklets, invitations, newsletters, brochures, and posters for Smithsonian bureaus and offices.

During the past several years, the University Press has concentrated its efforts on expanding and refining the focus of its seasonal lists and increasing the quality and quantity of the books produced. New series with distinguished scholarly boards have been established in ethnology, archaeology, evolutionary biology, and aviation history. Among the titles published in fiscal 1990 are *Smithsonian's New Zoo*, *Puerto Rico Mio: Four Decades of Change in Photographs* by Jack Delano, *The Art of Exclusion: Representing Blacks in the Nineteenth Century*, *The Exploratorium: The Museum as Laboratory*, *The Real McCoy: African-American Invention and Innovation, 1619-1930*, and *Cloth and Human Experience*.

Smithsonian Books

Smithsonian Books publishes books for a general audience on subjects that relate to Smithsonian collections and research interests. Marketed primarily by direct-mail promotion to Smithsonian Associates and other mailing lists, these highly informative, visually attractive books are also available to the general public through licensing arrangements with several trade publishers and through the 20-person sales force of the Smithsonian Institution Press.

In fiscal 1990, Smithsonian Books published *Editor's Choice*, an anthology of selected *Smithsonian* articles to commemorate the magazine's 20th anniversary, and a sequel to the best-selling *Smithsonian Book of North American Indians* titled *After Columbus: The Smithsonian Chronicle of the North American Indians*.

Smithsonian Collection of Recordings

The Smithsonian Collection of Recordings produces original and archival sound recordings ranging from classical to country, from American musical theater to classics of American jazz. Boxed sets, usually consisting of four compact discs, six vinyl records, or four cassette tapes and accompanied by liner notes in paperback book form, are sold to various audiences primarily through direct mail. Recently, the division has pursued coproductions with domestic and foreign affiliates. Since the first of these releases in 1989, five co-

productions have been issued, with more planned during the next three years. A series of recordings by the Smithsonian Chamber Players is being produced in association with the German record company deutsche harmonia mundi. This series is now distributed worldwide by BMG Classics. Other international agreements include coproductions with the French record company ADDA. The Smithsonian Collection of Recordings also collaborates with the National Museum of American History's Division of Musical History and other music history institutions in the United States. An important 1990 release is *J. S. Bach*, which features the *St. John Passion* performed by the Smithsonian Chamber Chorus and Players, along with works for solo violin and solo harpsichord.

Book Development Program

Now in its third year, the Book Development Program continued to expand its list of general titles for the museum visitor. The latest entries in its popular series of postcard books feature highlights of the collections of the Hirshhorn Museum and Sculpture Garden, the National Museum of American Art, and the National Museum of American History and its Warshaw Collection of Business Americana. A *Smithsonian Picture Tour* was added to the recently launched series of large-format pictorial overviews of Smithsonian museums. The major project for the year was the revision of the *Official Guide to the Smithsonian*, published simultaneously in English, German, French, Spanish, and Japanese. The Book Development Program also broke new ground in 1990 with its first nonfiction children's trade book. *The Dream Is Alive* is based on the popular movie shown to visitors at the National Air and Space Museum. The program is developing several other initiatives in publishing for children, a long-standing Press objective.

Smithsonian magazine celebrated its 20th anniversary in April 1990. Since that month was also the 20th anniversary of Earth Day, the magazine appropriately published a special issue on the environment. Essays by Wallace Stegner, Bil Gilbert, and William MacLeish on the past, present, and future of the environmental movement led off the issue; they were followed by stories covering everything from garbage to the cleanup of the Connecticut River. Response to the issue was excellent. A number of newspaper reviewers praised it, and a poster based on the lead story artwork has sold 40,000 copies.

Other articles on environmental topics published during the year dealt with the decommissioning of nuclear power plants and the impact of shrimp fishing on sea turtles. In November, the magazine again addressed tropical deforestation with a major article on the rubber tappers and Indians of the Brazilian rainforest. Flying his small airplane to remote Amazonian villages, author Michael Parfit provided in-depth reporting and a fresh perspective on the situation there.

In October, in recognition of the agreement between the Smithsonian and the Museum of the American Indian, Heye Foundation, the magazine ran a cover photograph and a photo essay on objects from the Heye collection. Feature stories on Smithsonian exhibitions included those on Winold Reiss, Albert Pinkham Ryder, and the "Five of Hearts." Other Institution activities received regular coverage in three of the magazine's departments: "Around the Mall," "Smithsonian Highlights," and "The Object at Hand." Contributions to the magazine from Institution staff included the secretary's column, columns by National Zoological Park Director Michael H. Robinson, an article by National Museum of American History Director Roger Kennedy on the Greek Revival, and a story by Zoo Curator John Seidensticker and Susan Lumpkin on opossums.

Major science stories during the last year included those on James Watson and the human genome project and on the solar maximum. In the arts, stories covered an array of subjects, from Jasper Johns to Frederic Church to dancer Jacques d'Amboise and his work with inner-city children.

Other articles were wide ranging, both geographically and culturally. There were stories on the restoration of Angkor Wat, African wall paintings, recent Mayan discoveries in Belize, and Canada's Museum of

Air & Space/Smithsonian Magazine

Civilization. Other articles dealt with Turkey's new dams and their impact on archaeological relics, the new generation of jazz musicians, the black sculptor Richard Hunt, the Brazilian landscape architect Roberto Burle Marx, and the retracing of Coronado's explorations.

While *Smithsonian* may properly be regarded as a benefit of membership in the Smithsonian Associates, it is also a product that must stand on its own. The magazine is subject to the nationwide economic conditions that affect all magazines; good years for magazines in general are also good years for *Smithsonian*. A cyclical softness in the economy during 1990 has caused a downturn in magazine advertising and an increased resistance to direct-mail promotion. Steeply increased postal costs in early 1991 will be difficult to deal with, since they will increase at a rate higher than the inflation rate of the rest of the economy and cannot be offset by an increase in subscription prices.

Advertising and circulation have been on a plateau for several years; the magazine carries approximately 1,000 pages of advertising annually. An important indicator of the magazine's stability has been its healthy, steady renewal rate. Circulation continues to hold at 2.3 million.

Smithsonian has for many years delivered a substantial surplus to the unrestricted funds of the Institution and will continue to do so. The amount of surplus will depend partly on general economic conditions, but also on the ingenuity and creativity of the magazine's staff.

The magazine's effort to improve minority participation in the magazine publishing industry entered a second phase this year. Last year, in concert with the Howard University School of Continuing Education, *Smithsonian* founded the Howard University Magazine Publishing Procedures Course, which brought together experts from the magazine community and participants from the publishing field interested in enhancing their careers. This year, with *Smithsonian* participation, responsibility for the course was assumed by the Magazine Publishers of America.

Air & Space/Smithsonian magazine sustained its circulation in a year when many magazines were retrenching. Audience response continues to reflect approval of the material the magazine provides, and there is growing acceptance of the publication as one of the most widely read magazines in the field of aerospace and its applied sciences. Newsstand sales showed strong growth, and early returns indicate that a redesign of the magazine's cover was successful in strengthening newsstand sales.

Air & Space/Smithsonian embarked on two definitive series during the year: "A Permanent Presence," examining the issues surrounding a human presence in Earth orbit and beyond, and a three-part history series recalling "The Battle of Britain/50 Years Later."

The February/March 1990 edition carried an education insert provided by the Boeing Company. The June/July edition included a supplement titled "Photos of Flight," featuring many images from the National Air and Space Museum's photographic collection.

“Smithsonian World”

“Smithsonian World,” the prime-time television series coproduced by the Institution and public television station WETA-TV, Washington, D.C., launched its fifth season in the winter of 1990. A reception hosted by the sole corporate underwriter of the series, Southwestern Bell Corporation, was held in the newly renovated Great Hall in the Smithsonian Castle. The fifth season’s critically acclaimed one-hour specials—“Zoo,” “A Moveable Feast,” “Tales of the Human Dawn,” “Nigerian Art—Kindred Spirits,” and “The Quantum Universe”—were broadcast nationally from January through June 1990 on PBS. In September, “Smithsonian World” won the prestigious Emmy Award for Outstanding Informational Series.

In tandem with these original broadcasts, Southwestern Bell Corporation underwrote a major advertising and promotion campaign, with award-winning four-color one-page advertisements featured in such national magazines as *Atlantic*, *TV Guide*, *Scientific American*, and the *New York Times Magazine*. As part of “Smithsonian World’s” Summer Encore Season, the 10 programs from its fourth and fifth seasons were aired nationally from July through September 1990 on PBS.

Additional awards this year for fourth-season programs included a Bronze Medal for “American Dream at Groton” and a Silver Medal for “Web of Life,” both from the International Film and Television Festival of New York; Bronze Plaques for “Web of Life” and “American Dream at Groton” from the Columbus International Film and Video Festival; and Cine Golden Eagle Awards for “The Living Smithsonian,” “Web of Life,” and “The Vever Affair.”

Under newly appointed Executive Producer Sandra Wentworth Bradley, production for season six began in the spring of 1990. Scheduled to air in 1991 are “Gender: The Enduring Paradox,” “Selling the Dream,” “From Information to Wisdom,” “A Certain Age,” and “The Doors of Perception.” These programs will bring to 32 hours the amount of original programming “Smithsonian World” has produced that examines unique concepts and ideas based on the broad-ranging disciplines within the Institution.

INSTITUTIONAL INITIATIVES

Alice Green Burnette, Assistant Secretary for Institutional
Initiatives

Secretary Adams created the Office of the Assistant Secretary for Institutional Initiatives in July 1989 to undertake new and long-range projects and monitor their development until they can become fully incorporated into the Institution. To lead these initiatives, the secretary appointed Alice Green Burnette as assistant secretary. By focusing on the advancement of a few projects, the office can ensure that initiatives of high priority to the Institution become realities.

One significant new program is the development of the National Museum of the American Indian. The Office of Institutional Initiatives has been charged with a lead role in planning for the new museum and is working closely with its founding director, W. Richard West, Jr. Legislation creating the museum requires the Institution to provide, from its own resources, one-third of the construction costs for the museum facility to be built on the National Mall. To meet this requirement, the office will spearhead a national fund-raising campaign. To initiate planning for the campaign, the office solicited the counsel of the J. Richard Taft Organization, which prepared a report that was approved by the Board of Regents in September 1990. The campaign will begin working in the fall of 1990 in donated office space and will continue through 1996. In addition to raising funds, the campaign will provide an opportunity for individuals of Native American heritage to train as fund-raisers in order to generate resources for other causes benefiting their communities.

The Office of Institutional Initiatives is also pursuing other programs that advance the Institution's aims. Of special note is the encouragement of an expanding relationship between the Smithsonian and institutions of higher education. While exploring ways to achieve this goal, the office has sponsored seminars at Spelman College in Atlanta, Georgia. The "Smithsonian at Spelman" series provided an opportunity for Spelman students to meet in an intimate setting with Smithsonian staff and management. These seminars expanded the career horizons of minority students by exposing them to new and dynamic opportunities. The Office of Fellowships and Grants maintains a continuing relationship with Spelman students who expressed an interest in pursuing internships and careers in fields related to Smithsonian programs.

ADMINISTRATION

John F. Jameson, Assistant Secretary for Administration

Administrative and Support Activities

Operating primarily behind the scenes at the Smithsonian, a network of administrative and technical support offices serves the diverse operations of the Institution. These offices underpin scholarly and public activities and ensure central oversight of and accountability for the management and use of financial, human, and physical resources. Fourteen offices and their divisions serve a range of functions from protection services to facilities construction, from duplicating to information resource management. Funding for central services in 1990 amounted to about 7 percent of the Institution's total operating expenses, exclusive of maintenance, operation, and facilities protection costs.

Office of Design and Construction

To improve its service to the Smithsonian bureaus, the Office of Design and Construction (ODC) was reorganized to permit improved coordination and control of its activities using structured project management techniques. Positions for nine project managers, each responsible for a discrete group of facilities, have been created. The new managers will coordinate projects from inception to completion, drawing on the professional and technical staff of the office for support as needed. Communications with project sponsors and facility staff will improve with the designation of a single ODC staff contact for each facility, and the overall planning and coordination of projects within facilities will improve as one manager becomes responsible for all construction. The reorganization was accomplished largely through reassignment and reclassification of current employees.

With the assistance of a contractor and a steering committee of representatives from the major bureaus, ODC began to create a facilities inventory and strategic plan for the Smithsonian. During the coming year, the project will include development of a computer-aided design (CAD)-based space inventory that will help planners and facility managers predict and plan for their space requirements. Before it is extended throughout the Institution, the system will be tested at the Freer Gallery of Art. A master plan for all Smithsonian-owned and leased facilities will also be developed. This plan will describe the composition of each facility, identify each bureau's need for space, and present op-

tions for meeting those needs on the basis of cost, availability, and suitability.

ODC managed about 40 construction projects during the past year and had more than 100 other projects in the planning or design phases. Significant planning projects included comprehensive site evaluation for an extension of the National Air and Space Museum and a massing study and estimate for a collections storage and research center in Suitland, Maryland. Major construction, repair, and renovation projects have included a link to the Quadrangle and other additions and alterations for the Freer Gallery of Art; construction of a laboratory and conference center at the Smithsonian Tropical Research Institute in Panama; construction of the base camp for the Whipple Observatory in Arizona; and replacement of the terrace at the National Air and Space Museum.

Office of Environmental Management and Safety

The Office of Environmental Management and Safety (OEMS), in conjunction with the Office of Design and Construction, developed and conducted an intensive construction safety training program for construction representatives. Nine ODC staff have completed the 12-module course, which is based on Occupational Safety and Health Administration construction standards. Several nationally recognized safety-related weeks were observed throughout the year at the Smithsonian. An OEMS staff member was chosen to represent the United States and to present a paper at an international symposium, "Fire Protection for Historic Buildings and Towns," held in Norway. Another staff member represented the Smithsonian at the Eighth International Conference on Fire Protection, held in Germany.

Office of Plant Services

The Office of Plant Services installed a wide-area computer network to support the newly developed integrated stock inventory control and purchasing system. Partnerships with local utilities companies continue, and the Institution was recognized by the Potomac Electric Power Company for ongoing energy conserva-

tion initiatives. Facilities maintenance and repair inspections also continue; the automated facilities monitoring program is a model program for monitoring and controlling lighting, temperature, and humidity conditions. Facilities in New York City related to the National Museum of the American Indian were inspected, and corrective actions were undertaken to bring it in compliance with Smithsonian standards. Staff worked closely with the Heye Foundation to ensure a smooth transition of existing Museum of the American Indian facilities to the Smithsonian. In addition, staff participated in a number of planning and design initiatives for the Custom House in New York City and the construction of an addition to the NMAI Research Branch that will facilitate the move of objects to Washington.

Office of Protection Services

Visits by heads of state and other dignitaries required close cooperative efforts between Office of Protection Services (OPS) security staff and officials of the Secret Service, State Department, and other jurisdictions. In October, the Protection Division's K-9 Unit received favorable coverage in the *Washington Post*. Security staff were recognized for their quick response in the apprehension of an assailant of U.S. Senator John Glenn while the senator was attending an event held at the National Air and Space Museum.

OPS also provided security escorts and made significant recoveries of collection items as a result of investigations. The occupational health program was expanded in the New York area to include hearing conservation audiograms and asbestos medical surveillance exams. As a result of a favorable evaluation of a new hyperbaric treatment chamber in Belize, Central America, Smithsonian divers at the marine station in Carrie Bow Cay may receive emergency care for underwater accidents.

In an effort to assist smaller museums and galleries that have limited training and travel budgets, the 13th annual National Conference on Museum Security was held in Chicago in concert with the Art Institute of Chicago. Speakers at the conference addressed topics ranging from art theft to construction security. Smaller museums and galleries continue to look to the Smithsonian as a preeminent training source and often refer

their security personnel for specialized instruction provided by headquarters staff. Long recognized as the foremost authority on museum security, the OPS provided consultative services to Isabella Stewart Gardner Museum officials and French museum officials after collection thefts.

With the transfer of the Museum of the American Indian, Heye Foundation collection and other assets to the Smithsonian Institution, the Office of Protection Services' security responsibility now extends to multiple locations in metropolitan New York City.

Office of Architectural History and Historic Preservation

Development of a program for historic preservation characterized the year for the Office of Architectural History and Historic Preservation. Training sessions and an in-house newsletter helped to integrate the preservation concerns of the office into the work of the Facilities Services Group. The office reviewed and offered advice on an increased number of design projects of all magnitudes this year. Major research projects on the architectural history of Smithsonian buildings provided a firm base in fact for historic preservation decisions recommended by the office. An intensive year-long study of reconstruction at the Patent Office Building after an earlier fire enabled the office to provide sound and accurate information on a window replacement project for the National Museum of American Art and the National Portrait Gallery.

Office of Planning and Budget

The Office of Planning and Budget (OPB) coordinates, develops, and assesses policies and procedures for the formulation and execution of the Institution's budgets. OPB assembles an annual report of Smithsonian federal and unrestricted Trust expenditures and employment trends, updating spending, employment, and operational tendencies that provide insight into frequently asked management and budget questions. OPB provided the Smithsonian's Management Committee with an overview of base funding on unrestricted Trust funds to facilitate the possible redirection of funding.

This year's *Five-Year Prospectus, Choosing the Future*, published as a shorter, more informative publication, is reaching legislators and giving prospective individual, corporate, and foundation contributors a broader context for their support of specific programs or projects.

In collaboration with the Office of Financial Management and Planning, OPB has developed and implemented the personnel cost projection system (PCPS). This new system, which utilizes the Office of Information and Resource Management's IBM 4381 computer for central processing, allows OPB and all bureaus and offices access to appropriate personnel and payroll data through the use of personal computers and will serve as the basis for a comprehensive total cost projection system for all institutional funds. PCPS will interface with the new accounting system to be installed next year.

Office of Printing and Photographic Services

The Office of Printing and Photographic Services continued to provide photographic and duplicating services throughout the Smithsonian organizations. In addition, it undertook long-range planning to position itself more effectively for future service. In the Duplicating Branch, a long-range plan was developed and implemented to help that unit better serve the Institution. By upgrading equipment and services in phases, the branch will increase efficiency and ensure compatibility with a broad range of electronic and photomechanical printing methods. These improvements will result in greater capabilities and improved speed and quality.

The Electronic Imaging Branch was established to combine videodisc reference materials with state-of-the-art image processing and transmission capabilities. The branch converts photographs to electronic forms and transmits them to remote locations; the resultant images have resolution qualities at the level of facsimile, news wire photo, and four-color separation. This capability will allow the office to make its images available to a far broader audience while preserving the originals in its archival cold storage facilities.

Office of Information Resource Management

The Office of Information Resource Management (OIRM) provides leadership in information technology throughout the Institution in planning, systems development, and support activities. This year, OIRM coordinated offices and bureaus in developing the Institution's first information resource management plan and completed a five-year communications study that will lead to the development of an integrated modern communications network. In conjunction with pan-Institutional groups, OIRM began working to define standard terminology and methods for automation of office and bureau functions. In the systems development arena, OIRM added new Collections Information Systems (CIS) data bases in the National Museum of Natural History, the National Museum of American Art, and the National Air and Space Museum. These efforts automated an additional 988,500 collections-related records. OIRM also expanded the functions and data bases of the Smithsonian Institution Bibliographic Information System (SIBIS), which now supports more than 3,000 on-line inquiries per day. In the support arena, computing capacity was increased by approximately 300 percent and communications access to distant units, including the Smithsonian Tropical Research Institute in Panama, was expanded; OIRM extended electronic mail to more than 1,000 staff and added connections to the international academic community; and more than 1,100 staff were trained through the Information Resource Center.

Office of Procurement and Property Management

As the principal acquisition office for the Smithsonian Institution, the Office of Procurement and Property Management (OPPM) contracts for the majority of goods and services used in support of Smithsonian programs, projects, and facilities. In addition, the office coordinates major projects that benefit Smithsonian programs. Goods and services contracted during 1990 included architectural services for the National Museum of the American Indian, construction services for the infant care center in the Arts and Industries Building, and concept and design services for a research vessel at the Smithsonian Tropical Research Institute.

(STRI). Several notable contracts were completed, including the Earl S. Tupper Research and Conference Center at STRI, the Smithsonian Visitor Information Center, the *Life in the Ancient Seas* mural in the Paleobiology Hall, National Museum of Natural History, and an analysis of proposed sites for the National Air and Space Museum extension.

Office of Equal Opportunity

The Office of Equal Opportunity (OEO) worked with the Office of Planning and Budget to incorporate affirmative action into the overall planning and budget process. The Institution-wide affirmative action plan continued to stress the placement of African Americans, Native Americans, Asian American/Pacific Islanders, Hispanics, and women in senior and professional positions. Progress to achieve cultural diversity in key positions was reflected in the appointments of an African American man as an acting assistant secretary and an African American man as inspector general. The OEO collaborated with the Management Committee and the Office of Personnel Administration in the initial phases of the Step Up '90 program, which identifies Smithsonian employees who have promotion potential for higher-graded positions. The Smithsonian Deaf and Hard-of-Hearing Advocates Group—established in cooperation with the OEO, the Smithsonian Women's Council, and hearing-impaired employees—met regularly to address work-related issues. In conjunction with the District of Columbia Public Schools, the OEO continued to sponsor the General Equivalency Diploma program for Smithsonian employees.

Office of Personnel Administration

Based on last year's study conducted by the National Academy of Public Administration, the Smithsonian has begun a comprehensive program review of its Office of Personnel Administration. This evaluation will address not only the current management philosophy of the central personnel office, but also the nature of its service operations and support systems. Under the guidance of Director Marilyn Marton, who was appointed in September, the office will be modernized and

strengthened to respond more effectively to the needs of the Smithsonian's diverse work force. In recognition of this commitment to building an improved service entity capable of providing leadership in managing the Institution's human resources, the office will be renamed the Office of Human Resources.

Management Analysis Office

The Management Analysis Office (MAO) continued to identify and promote actions to strengthen internal controls. The office conducted several reviews of Institution units and activities, including those that might reduce costs and improve efficiency by hiring outside contractors to perform commercial functions traditionally carried out by Smithsonian staff. MAO publishes a biweekly employee bulletin on timely administrative matters.

Travel Services

The Travel Services Office continued to provide efficient and economical travel services to Smithsonian employees and consultants. More than \$2.5 million in air and train tickets were issued in support of a range of Smithsonian programs and activities. These included activities associated with the National Museum of the American Indian, extensive research trips both in the United States and abroad, and a growing number of conferences and workshops held in the United States, Malaysia, Mexico, and throughout South America.

Ombudsman

The Smithsonian ombudsman, a neutral party to whom staff can bring work-related problems, assisted approximately 200 employees with a variety of concerns. Based on an employee suggestion to the ombudsman, an aluminum can recycling program, with proceeds being donated to the National Children's Medical Center, was started for most of the Washington-area employees.

Smithsonian Institution Women's Council

Established in 1972, the Smithsonian Institution Women's Council identifies and studies the concerns of employees, advises management on women's issues, and strives to improve working conditions. This year the council cosponsored a two-and-one-half-day conference, "Gender Perspectives: The Impact of Women on Museums." The council also published an affirmative action brochure for employees to provide information on these activities at the Institution. Four standing committees—Benefits, Newsletter, Outreach, and Programs—carry out most of the council's tasks.

UNDER SEPARATE
BOARDS OF TRUSTEES

John F. Kennedy Center for the Performing Arts

James D. Wolfensohn, Chairman

Since the John F. Kennedy Center for the Performing Arts opened in 1971, it has transformed the cultural life of the nation's capital. It is both the showcase for America's finest performing artists and the place where our nation receives outstanding artists from around the world. Through its presentations and its nationwide education programs, the center gives people of all ages the opportunity to enjoy the best of this country's performing arts.

The Kennedy Center was created by an Act of Congress in 1958 as a self-sustaining bureau of the Smithsonian Institution. As a living presidential memorial under the aegis of the Department of the Interior, the national center for the performing arts is directed by a board of trustees whose 30 citizen members are appointed by the president of the United States. Six congressional representatives and nine designated ex officio representatives of the executive branch complete the membership. In March 1990, the center's board elected James D. Wolfensohn as its new chairman.

Performing Arts Programming

The 1989–90 season at the Kennedy Center was attended by 1,381,334 people in the Opera House, Concert Hall, Theater Lab, and Eisenhower and Terrace theaters. Another 46,823 people attended the free performances presented by the Kennedy Center through its Education Department, Holiday Festival, Cultural Diversity programs, and Kennedy Center Open House Arts Festival. More than 96,000 people attended the films presented by the American Film Institute in the AFI Theater.

Several developments during 1989–90 will affect programming for the next several years. A \$450,000 National Endowment for the Arts Challenge III grant will help make possible six new ballets by American choreographers to be premiered at the Opera House by six American ballet companies during the next four years. James Wolfensohn created a new division, Television and Special Projects, to develop television into the center's "seventh stage," a plan that will add dramatically to the center's standing as a national institution. Major thematic performing arts festivals will be more prominent in the Kennedy Center's future with

the announcement of the 1991 Texas Festival at the Kennedy Center and the 1992 Festival of the Americas.

Dance

The 1989–90 ballet season was one of rediscovery, as the Joffrey Ballet brought back to life two long-lost classics—Nijinsky's *The Rite of Spring* and Balanchine's *Cotillon*—and the American Ballet Theatre celebrated its 50th anniversary with a spectacular gala tribute to its magnificent history. Ballet National de Marseille Roland Petit and the Australian Ballet both returned from distant shores for their second Kennedy Center appearances, and Dance Theatre of Harlem and the Boston Ballet, in its Kennedy Center debut, rounded out the season.

Dance America, sponsored by the Washington Performing Arts Society and the Kennedy Center, presented some of the country's most celebrated modern dance ensembles, including Bill T. Jones/Arnie Zane Co., the Feld Ballet, Paul Taylor Dance Company, and Urban Bush Women.

Music

An exciting and historic cultural event took place this season when the National Symphony Orchestra embarked on its first tour to the Soviet Union, led by Music Director Mstislav Rostropovich, who returned to his homeland for the first time since 1978 when the Soviet government stripped him of his citizenship. The trip, which included concerts in Japan and performances in Moscow and Leningrad, was a worldwide news event and earned the orchestra some of the finest reviews in its history.

At home, the orchestra played 28 weeks in the Kennedy Center Concert Hall and a week at the annual Casals Festival in Puerto Rico, where it was named the official orchestra of the festival.

This year, the popular Terrace Concerts—highlighting piano and vocal recitals, chamber ensembles, and orchestras—added the Family Concerts, which are ideal opportunities for parents to introduce their children to the joys of music. The performers are not only top-



National Symphony Orchestra Affiliate Artist Conductor Randall Craig Fleischer led Music Director Mstislav Rostropovich and the orchestra in Dvořák's Cello Concerto during the symphony's historic tour of the Soviet Union. (Photograph by Joan Marcus)

notch musicians, but also have the ability to communicate about their art and their instruments.

The annual Kennedy Center Friedheim Award, described by the *New York Times* as "one of the most prestigious prizes an American composer can win," was awarded to William Kraft and Ralph Shapey, who tied for first place. Lincoln Center's Mostly Mozart Festival and Chamber Music Society returned for their annual performances.

As always, a multitude of free events, many featuring performers from the Washington metropolitan area,

took place in conjunction with the Holiday Festival in December and the Kennedy Center Open House Arts Festival in the fall.

Opera

The Kennedy Center Holiday Festival added a definitive production of the Christmas classic *Amahl and the Night Visitors* by Gian Carlo Menotti to its roster of seasonal traditions. Staged by Menotti in the Eisen-

hower Theater and designed by Zack Brown, the highly praised production is destined to become a perennial favorite.

The Washington Opera, under the direction of Martin Feinstein, presented seven productions from October through March: *Lucia di Lammermoor*; *Così fan tutte*; *Werther*; *Die Fledermaus*; the rarely seen German romp, *Merry Wives of Windsor*; the Washington premiere of the new American opera, *The Aspern Papers*; and a landmark for the company, its first-ever *Aida*.

Theater

Two Broadway-bound plays that have become New York hits launched the 1989–90 theater season: the suspenseful courtroom drama *A Few Good Men* and August Wilson's acclaimed *The Piano Lesson*. In December, the wacky characters from Tuna, Texas, returned for *A Tuna Christmas*, while the Opera House hosted *Annie II*. More musicals were in order for the rest of the year with the nostalgic *Stardust*; the energetic musical from South Africa, *Sarafina*; the spectacular Andrew Lloyd Webber production, *Starlight Express*; and the urban musical from Chicago, *Project!* In a category all its own was Frank Galati's orchestration of word, image, and music, *She Always Said, Pablo*.

Kennedy Center Associate Organizations

Many events at the Kennedy Center are produced by the center's artistic associates. The American Film Institute celebrated its theater's 20th anniversary with showings of some of its most popular programs from the past and an ongoing series of American Independent Films. The Washington Performing Arts Society presented an array of musicians and dancers from around the world in its diverse series.

Educational and Public Service Programming

The Kennedy Center has a unique responsibility for advancing all the arts as part of the education of our nation's youth. In 1990, the center's Education Depart-

ment sponsored performances and related events for more than six million people nationwide through six component programs: the Alliance for Arts Education, American College Theater Festival, the National Symphony Orchestra Education Program, Theater for Young People, Educational Services, and Imagination Celebration.

The network of state Alliance for Arts Education organizations reached more than five million people in 1990 through programs and activities that focused on arts education policy development, educational services for teachers and administrators, information and resource development, awards and recognition projects, advocacy and awareness, and programs for young people. The alliance hosted the National Summit on the Arts and Education, which brought more than 350 artists and arts educators to Washington. Guests included Gian Carlo Menotti, Edward Villella, and Richard Thomas. The alliance also initiated a cultural exchange with Finland and the Soviet Union.

More than 500,000 young people and adults participated in the Kennedy Center Imagination Celebration, the national children's arts festival program held in 12 U.S. cities and Australia. Performances were given by the Acting Company, the Nikolais Imagination Dance, and many others.

The American College Theater Festival (ACTF) presented its 22nd year of programs as part of its goal to advance the finest work produced by college and university theater programs. More than 18,000 students and 2,200 faculty members representing 550 schools presented more than 850 college theater productions in 1990. ACTF also sponsored numerous awards programs in playwriting, design, criticism, and acting and cosponsored the Shenandoah Valley Playwrights Retreat.

The Kennedy Center Theater for Young People provided 200 free or low-cost performances and events to audiences of more than 90,000, acting classes to approximately 750 Washington-area young people, and playwriting workshops to 150 students.

Educational Services used the performing arts resources at the center as a basis for workshops and other educational events for 7,600 secondary school students, 1,400 teachers, and 11,000 other adults in fiscal 1990.

The Education Department commissioned new works

in 1990 from choreographer Alwin Nikolais and playwrights Jeff Church and Mary Hall Surface, which brought the total number of commissions to 38 since 1977.

The Kennedy Center sponsors a range of activities that reflect our nation's cultural and ethnic diversity, including performances, commissions, workshops, conferences, internships, and advisory and technical services in arts administration. New this year is the Young Performers Series, which presents talented musicians from Washington, D.C., schools in free lunchtime concerts, and the Cultural Passport Program, through which Washington young people who have had internships with the center and the city's other major cultural institutions will be able to attend performances throughout the year with their families. These programs are supported by the U.S. Department of Education and by private sources.

The Kennedy Center supports many free and low-priced performances and events that are enjoyed annually by more than a million people in Washington, D.C., and around the country. The Specially Priced Ticket program, the largest of its kind in the nation, makes half-price tickets to performances produced and presented at the center available to students, people with permanent disabilities, senior citizens, military personnel (grades E1-E4), and people on fixed low incomes. During the last 19 years, nearly 1.9 million half-price tickets in all seating categories have been purchased by eligible individuals. The Kennedy Center and outside producers bear the costs of the program.

In addition, 18,000 people visited and used the Performing Arts Library, which is a joint project of the Kennedy Center and the Library of Congress.

Funding

The Kennedy Center is a unique institution—a living presidential memorial devoted to the performing arts. In fiscal 1990, the National Park Service provided \$8 million in funding through annual appropriations to maintain, repair, and secure the building as a presidential memorial. The Kennedy Center Board of Trustees contributes a pro rata share of certain of these costs, which totaled more than \$1 million in 1990.

Artistic programming and day-to-day performing arts

operations for the center and the National Symphony Orchestra are largely supported by box office revenues and private gifts. The center and the orchestra also seek funds for their wide range of free or modestly priced educational and public service activities. The \$15 million in funds raised in fiscal 1990 represents 29 percent of the center's total operating budget. Of the total operating revenues, 23 percent comes from private gifts and grants and 4 percent from government sources. General membership programs of the center and the orchestra include 40,000 donors.

In its 13th year, the Kennedy Center's Corporate Fund received contributions totaling nearly \$3 million from more than 350 national and international companies. John L. Clendenin of BellSouth Corporation headed this effort. Total corporate support of the center and National Symphony Orchestra's activities came to more than \$3.5 million.

The Kennedy Center and the National Symphony Orchestra's joint endowment campaign to build a permanent base of financial support reached more than \$37 million by the close of the fiscal year.

The Kennedy Center Honors Gala is the center's most important fund-raising event. The 1989 gala evening, which honored Harry Belafonte, Claudette Colbert, Alexandra Danilova, Mary Martin, and William Schuman, raised more than \$1.4 million to support programming.

Friends of the Kennedy Center

The Friends of the Kennedy Center was founded in 1966 to foster public involvement in the center and obtain individual support through financial contributions and volunteer participation. Today, more than 40,000 members of the Friends and the National Symphony Orchestra Association provide much-needed support for the overall operations of the Kennedy Center. Although most members are drawn from the Washington, D.C., area, there are members in all 50 states.

The diversity of Friends programs opens doors to a cross section of the community, encouraging involvement in the center in a variety of ways. The Friends administers a volunteer program with more than 500 participants who work throughout the building. Volunteers provided free guided tours to more than 102,000

National Gallery of Art

J. Carter Brown, Director

visitors this year and assisted more than 240,000 visitors at the Information Center. Volunteers also staff the Public Service Desk, administer the Specially Priced Ticket program, and assist with the annual Open House Arts Festival. The 4-H program, organized and managed by volunteers, makes it possible for more than 6,000 students from all over the country to visit the Kennedy Center each summer and learn more about the performing arts. The Friends also administer and staff the Kennedy Center gift shops, which generated almost \$1 million in sales this year. In addition, Friends Assisting the National Symphony (FANS) volunteers organize special events to develop new audiences for the National Symphony Orchestra.

Events produced by the Friends of the Kennedy Center this year included the annual Radiothon to benefit the orchestra and the sixth annual Kennedy Center Open House Arts Festival, a day-long festival of free performances by more than 50 of the finest performing artists in the greater Washington area.

The National Gallery of Art, although formally established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own board of trustees, the *ex officio* members of which are the chief justice of the United States, the secretary of state, the secretary of the treasury, and the secretary of the Smithsonian Institution. Of the five general trustees, Franklin D. Murphy continued to serve as chairman of the board, with John R. Stevenson as the gallery's president. Also continuing on the board were Ruth Carter Stevenson, Robert H. Smith, and Alexander M. Laughlin. Paul Mellon is honorary trustee.

During the year, visitors entering both of the gallery buildings numbered 5,580,005.

Exhibitions

Ten of the 21 temporary exhibitions presented during the year provided opportunities to study the work of single artists. The first major showing outside the Netherlands of the work of Frans Hals included, among the 60 paintings and small oil sketches, his earliest known work. Fifty landscapes by Frederic Edwin Church included his large-scale panoramic paintings *Morning in the Tropics*, *Niagara*, *Heart of the Andes*, and *The Icebergs*. "John Twachtman: Connecticut Landscapes" was the third in a series of exhibitions of American impressionists (William Merritt Chase and Childe Hassam were previously spotlighted). Twenty-six landscapes done by Twachtman between 1889 and 1901 on his Greenwich, Connecticut, farm and at other nearby locations explore the effects of seasons and light in several versions of the same scenes. A comprehensive survey of 125 works of another American artist, John Marin, illuminated in oils, watercolors, drawings, and etchings the artist's method of transforming images from nature. Twenty-nine genre and landscape paintings by the nineteenth-century American artist George Caleb Bingham included several of his paintings depicting life on the great rivers of the Midwest and images of rural political campaigns.

"The Drawings of Jasper Johns," 117 works spanning the artist's 35-year career, revealed in Johns's familiar images—flags, targets, numbers and optical illusions—his virtuosic draftsmanship in a wide range of

techniques and media. "Rembrandt's Landscapes" was the first major exhibition devoted to this great artist's depictions in drawings and prints of the simple cottages of the Dutch countryside. "Edvard Munch: Master Prints from the Epstein Family Collection" exhibited 94 prints on loan from one of the world's largest and finest private collections of Munch prints.

"Matisse in Morocco: The Paintings and Drawings, 1912-1913" was jointly organized with the Museum of Modern Art, New York, and, in the Soviet Union, the State Pushkin Museum of Fine Arts and the State Hermitage Museum. The motifs developed around the landscape and gardens of Tangier and the still lifes and people of Morocco inspired the artist during the rest of his career. Twelve of the 23 paintings had never been shown in the United States, and a number of the drawings were discovered during research for the exhibition.

"Kazimir Malevich 1878-1935" was the largest and most comprehensive retrospective ever held in America of the work of the Russian artist whose best-known works are abstract "Suprematist" compositions. The 175 paintings, works on paper, and architectural models, which also embraced such movements as impressionism, symbolism, neo-primitivism, and cubo-futurism, were borrowed from the Soviet Union, the Netherlands, France, and the United States.

Impressionist and postimpressionist works borrowed from two great private collections were shown during the summer months. Fifty-four paintings, watercolors, and drawings by Cézanne, Van Gogh, Gauguin, and others were lent from the collection of Walter H. Annenberg and Mrs. Annenberg. A recent acquisition, *Au Lapin Agile*, an early important painting by Picasso, was added to the exhibition in time for the opening.

"The Passionate Eye: Impressionist and Other Master Paintings from the Collection of Emil G. Bührle" included among 85 old master, impressionist, postimpressionist, and early modern works six paintings by Van Gogh and seven paintings by Cézanne. "Expressionism and Modern German Painting from the Thyssen-Bornemisza Collection" presented 34 paintings by 19 artists selected from this great collection of modern and old master paintings. A survey of recent international printmaking—more than 100 prints and illustrated books by more than 90 American and European artists—could be seen in "The 1980s: Prints from the Collection of Joshua P. Smith."

"The Sculpture of Indonesia," the first major exhibition of ancient Indonesian art in this country, inaugurated an 18-month nationwide celebration of Indonesian culture. The exhibition included more than 135 Buddhist and Hindu bronzes, life-size stone sculptures, delicate gold and silver figures, and ceremonial objects dating from the eighth through the fifteenth centuries. Among the highlights was a perfectly preserved thirteenth-century sculpture of the Goddess of Transcendental Wisdom, thought to be a portrait of the first queen of the Eastern Javanese dynasty of Singasari, and the only surviving example of a ninth-century bronze of the four-armed Siva with precious metal inlay. A special ancillary installation presented three life-size paintings by John Singer Sargent of members of a famous Javanese dance troupe he saw perform at the 1889 Exposition Universelle in Paris. The paintings remained in the artist's studio until his death in 1925 and were reassembled from private collections to be shown together for the first time in 65 years.

An exhibition of old master drawings was borrowed from the National Gallery of Scotland. The selection of 96 works created between the fourteenth and eighteenth centuries, primarily Italian and Netherlandish, included drawings by Raphael, Piranesi, Rembrandt, and Van Dyck, as well as by such French masters as Bellange, Poussin, and Fragonard.

The newly restored Bellini and Titian painting *The Feast of the Gods* was installed with color photographs showing the painting before restoration, a full-scale radiograph, and an infrared reflectogram. An accompanying half-hour film discusses the restoration of the painting. The portrayal of gods, goddesses, and satyrs enjoying a bacchanal was originally painted by Bellini in 1514, with a background landscape that was later transformed by Titian.

Education Programs

The Division of Education underwent a major reorganization to permit the development of model programs that promote communication with national and international colleagues and support major programmatic functions within the division.

The Department of Adult Programs presented talks on 13 special exhibitions and tours that examined as-

pects of the permanent collection such as decorative arts, still life painting, and depictions of weather. The department also offered a 14-week survey course titled "Art of the Western World" and a five-week course, "Masters of Nineteenth-Century Painting," in conjunction with the Annenberg and Bührle exhibitions. The department also oversaw internship programs such as the summer graduate student program, a new internship for minorities interested in the museum profession, a graduate lecturing fellowship, and a new program for Spanish curatorial fellows.

Special lectures and tours enhanced the temporary exhibitions. Seminars were offered on the expressionist paintings in the Thyssen-Bornemisza collection. A public symposium with four guest lecturers marked the opening of the Annenberg and Bührle exhibitions. In conjunction with the Malevich exhibition, a four-part lecture course on the Russian avant-garde was given. The fifth in the series of programs, "Conversations with Artists," gave visitors a chance to talk with a printmaker and a print publisher whose prints were represented in the Joshua Smith collection.

The department also oversees the gallery's film program, which offers, in addition to documentary and educational films, the work of various filmmakers in association with temporary exhibitions. A number of rarely screened German films were shown at the time of the Thyssen-Bornemisza exhibition, and a series of French films titled "The French New Wave Revisited" was shown during the Annenberg and Bührle exhibitions. In conjunction with the prints of Edvard Munch from the Epstein family collection, a series titled "A Cinema of Madness and Melancholy" and Kenneth Clark's film on Munch were shown.

The Department of Exhibition Programs produced a variety of interpretive materials for 20 special exhibitions. The staff wrote brochures for the Twachtman, Matisse, Johns, Indonesian sculpture, and Bingham exhibitions and the Annenberg and Bührle collections and a leaflet on printmaking techniques for "The 1980s: Prints from the Collection of Joshua P. Smith." The department produced six recorded tours and wrote wall texts for all exhibitions. Special programs in conjunction with the exhibitions included two performance-lectures of nineteenth-century song, legend, and music based on the moralizing Victorian parlor ballads found in the music collection of Frederic Church's home,

Olana. A series of concerts presented the distinctive music of the drums, metallophones, and other gong chime instruments of the Javanese gamelan orchestra during the Indonesian sculpture exhibition.

The Department of Educational Media produced varied programming during the year. Television public service announcements were produced for the exhibitions of the Annenberg and Bührle collections and the Hals exhibition. Films and videos were produced on such varied subjects as the pilot program of the National Teacher Institute on American Art, the findings of the Visitor Study Focus Group, and the exhibition of *The Feast of the Gods*. The department also produced a 23-minute program showing representative segments of the gallery's videos and films for use by the Publications Sales Office at the Frankfurt Book Fair and prepared 37 talks and interviews to accompany the Sunday broadcast of gallery concerts on local radio station WGMS.

As part of the gallery's membership in the Museum Education Consortium, the department works with other museums to develop state-of-the-art interactive computer technologies to enhance public art instruction, classroom teaching, and self-directed learning.

The Department of Education Publications provides editorial and production support to all other education departments and produces educational publications on the gallery's permanent collections. The department's responsibilities include the revision and expansion of the gallery leaflet program. During the year, the department assembled, edited, and prepared for publication *National Gallery of Art: Guide to Resources and Programs*.

The new Department of Education Resources combines the former Extension Programs and Art Information. The Art Information staff answers written and telephone inquiries from the public and trains and supervises the more than 130 volunteers who staff the five information desks. During one period of high visitation, information desk volunteers responded to more than 7,500 questions a week, 90 percent of which concerned the gallery. Approximately 700 telephone inquiries a week were answered, and an average of 140 questions per month required special research.

Presentations of extension programs reached an all-time high of 203,424, over half of which were broadcast on network and public television. Twelve pro-



In 1990, the National Gallery of Art purchased *The Fall of Phaeton*, by Sir Peter Paul Rubens (Flemish, 1577–1640) through the support of the Patrons' Permanent Fund.

grams were transmitted by the U.S. Information Agency's WORLDNET satellite to U.S. embassies and posts in Latin America, Africa, the Middle East, and South Asia. "The Landscapes of Frederic Edwin Church," produced by the department in connection with the Church exhibition, won a 1990 CINE Golden Eagle Award.

In November, the docents of the Department of Teacher and School Programs hosted the National Docent Symposium and participated in a peer review of the docent and school tour program along with professional staff from several major museums. Teacher programs included an ongoing series of workshops that served more than 750 teachers and a National Teacher Institute on American Art that was offered three times during the summer of 1990 to 165 teachers from more than 30 states and Mexico. The department formed a local and national advisory panel of education experts to advise the staff on the content of teacher programs and school publications. Teaching packets were prepared on the Church, Rembrandt, Matisse, and Annenberg collection exhibitions. A teaching packet on impressionism and postimpressionism, using the gallery's permanent collection, was prepared for the 1990 teacher institute and tested by 16 teachers from the Washington, D.C., area. In addition, the department prepared family guides on the permanent collection and the Indonesian sculpture exhibition. A family program

for the Bingham exhibition titled "Colorful Characters" focused on the people and pastimes represented in the paintings and included storytelling and a take-home art activity.

Acquisitions

Outstanding among the paintings acquired during the year were three disparate works. The dramatic and powerful mythological subject of *The Fall of Phaeton* is brilliantly illustrated in an early painting by the seventeenth-century Flemish master Peter Paul Rubens. The work depicts the moment when the son of Apollo is thrown from his chariot by Jupiter's thunderbolt, while winged female figures try to control the bolting horses. The gallery's first work by another seventeenth-century artist, the Dutch master of the nocturnal landscape, Aert van der Neer, also entered the collection. The large composition conveys with great skill the effect of the moon shining through the clouds and its reflection in a stream crossed by a bridge. A serenely beautiful *Fruit Still Life with Chinese Export Basket*, painted in 1824, is the gallery's first work by the American artist James Peale.

A number of works were added to the modern and contemporary collections. Two remarkable paintings were by the German expressionist Ernst Kirchner: the

strong and colorful *Green House in Dresden*, painted in 1909–1910, and *The Visit: Couple and Newcomer*, painted in 1922. A rare and unusual painting by Felix Vallotton, *The Church of Souain*, is one work in the artist's frequently ignored cycle of major World War I paintings. The silhouette of a ruined church against a violent yellow sky portrays the aftermath of the conflict both symbolically and realistically.

The first work by the important American abstract expressionist Clyfford Still was acquired this year. 1951–N is a large canvas thickly painted with several layers of dark burgundy reds cut through with a cascade of bright red, with a flash of yellow at the top. Other gifts to the contemporary collection included *Look Mickey*, a work given by American Pop artist Roy Lichtenstein. Ellsworth Kelly contributed one of his beautiful bronze free-standing steles, an arc rising nearly 10 feet. A large painted aluminum sculpture, *Wall*, by Adolph Gottlieb, was given through the auspices of the artist's widow. Finally, the Collectors Committee contributed works by three notable contemporary artists: two important sculptures and a fascinating sculptural-art environment. Joel Shapiro's large bronze composition of cast bronze blocks cantilevered over the floor surface evokes a playful, dancing human figure. Martin Puryear's 14-foot long *Lever No. 3*, done in laminated, carved, and painted pine, suggests mechanical, animal, and vegetable forms. *Mirrored Cell*, by Lucas Samaras, is the largest and most complex of six such mirrored spaces the artist has created. The viewer can enter this room-sized sculpture with completely mirrored surfaces. Inside, the cell is furnished with a mirrored bed, desk and chair, toilet, and bedroom chest.

Foremost among the additions to the graphics collections were two sixteenth-century drawings, a very rare drawing from the 1550s by Antoine Caron, titled *A Cavalry Battle in Roman Dress*, and a double-sided drawing by Parmigianino. Other outstanding acquisitions were a fine red chalk drawing by Taddeo Zuccari and a double-sided sheet of figure studies by Domenico Tintoretto, the gallery's first by that artist.

Some 50 works were added through gifts and purchases to the collection of old master prints. Of particular importance are a rare fifteenth-century woodcut, *Christ on the Cross*, with gold leaf background; a complete set of 12 etched *Landscapes Dedicated to the*

Grand Duke of Tuscany (1638) by Ercole Bazicaluva; and a very rare print by the British artist Paul Sandby, *Mountainous Coast with Travelers*, one of the earliest known examples of the aquatint process.

Additions to the modern prints and drawings collection included gifts of drawings by Jasper Johns, *Red Grooms (Self portrait with extra large paper hat)*, and Jacob Kainen. The Gemini G.E.L. Archive was enriched by the addition of 133 works by 26 artists, and the Graphicstudio Archive was increased by 20 works by five artists. Purchases of drawings included *Scheherazade* by Jacob Kainen, *Dodo and an Older Woman Reclining before a Mirror* by Ernst Kirchner, and a *Portrait of Woman* by Paula Modersohn-Becker.

Six vintage Paul Strand photographs were added to the gallery's growing photography collection. Twenty-nine photographs by Walker Evans were acquired by gift and purchase. A major archive of his work was donated by Robert Frank, one of the most important photographers to emerge since World War II. The collection of 61 rare vintage photographs, 2,300 contact sheets, 1,000 work prints, and approximately 2,400 rolls of film constitute the major repository of Frank's art.

Center for Advanced Study in the Visual Arts

In its 10th year, the center continued its program of fellowships, meetings, publications, and research. In addition, the center continued to meet with the Association of Research Institutes in Art History (ARIAH), a union of 12 North American institutions that support advanced research. ARIAH enables member institutions as a group to develop and seek funding for jointly sponsored programs and projects and to share visiting scholars. The center also took part in meetings of the Washington Collegium for the Humanities, made up of nine research institutions.

This year, the Samuel H. Kress Foundation supported a symposium, "Eius Virtutis Studiosi: Classical and Postclassical Studies in Memory of Frank Edward Brown (1908–1988)," and the Banca Commerciale Italiana and Alitalia supported a symposium, "Intellectual Life at the Court of Frederick II Hohenstaufen." The center cosponsored a symposium with the American Academy in Rome and cosponsored the Twentieth An-

nual Sessions of the Middle Atlantic Symposium in the History of Art with the University of Maryland Department of Art History. A seminar on Prints and Prototypes was also presented.

The Kress Professor for the academic year was the distinguished scholar Milton W. Brown, who has been a resident professor at the Graduate School and University Center of the City University of New York since 1979.

Publications in the series Studies in the History of Art included volume 20, *Retaining the Original: Multiple Originals, Copies and Reproductions*; volume 22, *Italian Plaquettes*; volume 25, *The Fashioning and Functioning of the British Country House*; volume 26, *Winslow Homer*; volume 27, *Cultural Differentiation and Cultural Identity in the Visual Arts*; and volume 35, *The Architectural Historian in America*.

Regular publications included *Center 10*, an annual record of the scholarly events and research of the preceding year, and *Sponsored Research in the History of Art 9*, a directory of art history research projects supported by granting institutions in the United States and abroad for 1988–89 and 1989–90.

Departments throughout the gallery are preparing for 50th anniversary activities in 1991. The permanent collection is being reinstalled with new lighting and new labels, many works are being reframed with appropriate period frames, a new system of supplying information on the works of art to the public is being designed, fund raising has gone forward to establish a fund to purchase a special work of art, and donors are being encouraged to give works of art suitable to this landmark in the gallery's history.

Special Exhibitions

"Twentieth-Century Art: Selections for the Tenth Anniversary of the East Building." Continued from the previous fiscal year to December 31, 1990. Coordinated by Jack Cowart and Nan Rosenthal.

"Frans Hals." October 1 to December 31, 1989. Coordinated by Arthur K. Wheelock. Supported by Republic National Bank and Safra Republic Holdings, S.A., Banco Sofia, S.A., and the Federal Council on the Arts and the Humanities.

"Frederic Edwin Church." October 8, 1989, to March 18, 1990. Coordinated by Franklin Kelly.

"John Twachtman: Connecticut Landscapes." October 15, 1989, to February 11, 1990. Coordinated by Deborah Chotner. Supported by Bell Atlantic.

"Expressionism and Modern German Painting from the Thyssen-Bornemisza Collection." November 19, 1989, to January 14, 1990. Coordinated by Charles S. Moffett. Supported by the Federal Council on the Arts and the Humanities.

"The 1980s: Prints from the Collection of Joshua P. Smith." December 17, 1989, to April 8, 1990. Coordinated by Ruth E. Fine.

"Reinstallation of Bellini/Titian *Feast of the Gods*." January 14 to April 29, 1990. Coordinated by David Alan Brown.

"Selections and Transformations: The Art of John Marin." January 28 to April 15, 1990. Coordinated by Ruth E. Fine.

"Matisse: *Jazz* and Other Works on Paper from the National Gallery Collection and Promised Gifts." February 25 to June 3, 1990. Coordinated by Ruth E. Fine.

"Rembrandt's Landscapes: Drawings and Prints." March 11 to May 20, 1990. Coordinated by Margaret Morgan Grasselli. Supported by the Federal Council on the Arts and the Humanities.

"Matisse in Morocco: The Paintings and Drawings, 1912–1913." March 18 to June 3, 1990. Coordinated by Jack Cowart. Supported by the Richard King Mellon Foundation and the Federal Council on the Arts and the Humanities.

"Gardens on Paper: Prints and Drawings 1200–1900." April 1 to July 22, 1990. Coordinated by Virginia Clayton. Supported by Estee Lauder, Inc.

"The Passionate Eye: Impressionist and Other Master Paintings from the Collection of Emil G. Bührle." May

Reading Is Fundamental, Inc.

Mrs. Elliot Richardson, Chairman
Ruth Graves, President

6 to July 15, 1990. Coordinated by Charles S. Moffett. Supported by Martin Marietta Corporation and the Federal Council on the Arts and the Humanities.

"Masterpieces of Impressionism and Post-Impressionism: The Annenberg Collection." May 6 to August 5, 1990. Coordinated by Charles S. Moffett.

"The Drawings of Jasper Johns." May 20 to July 29, 1990. Coordinated by Ruth E. Fine and Nan Rosenthal. Supported by Ford Motor Company and the Federal Council on the Arts and the Humanities.

"Edvard Munch: Master Prints from the Epstein Family Collection." May 27 to September 3, 1990. Coordinated by Andrew Robison. Supported by Statoil.

"Old Master Drawings from the National Gallery of Scotland." June 24 to September 23, 1990. Coordinated by Andrew Robison. Supported by the Federal Council on the Arts and the Humanities.

"Sargent's *Javanese Dancers*." July 1 to September 30, 1990. Coordinated by D. Dodge Thompson.

"The Sculpture of Indonesia." July 1 to November 4, 1990. Coordinated by D. Dodge Thompson. Supported by Mobil Corporation and the Federal Council on the Arts and the Humanities.

"George Caleb Bingham." July 15 to September 30, 1990. Coordinated by Nicolai Cikovsky, Jr. Supported by Hecht's, a division of the May Company Department Stores, and Monsanto Company.

"Kazimir Malevich 1878-1935." September 16 to November 4, 1990. Coordinated by Marla Prather. Supported by Philip Morris Companies, Inc., and the Federal Council on the Arts and on the Humanities.

Reading Is Fundamental, Inc. (RIF) marked a milestone in fiscal 1990: the 100 millionth book chosen by a child since the program was founded in 1966. This national, nonprofit literacy organization, which is supported by corporations, foundations, private citizens, and a federal contract, brings books and reading activities to young people and involves parents in their children's reading.

Thousands of communities have looked to RIF for help in turning children into lifetime readers. RIF's grassroots network of 3,600 projects is operated by 112,000 volunteers and spans 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. This year, the RIF program brought 7.5 million books to 2.4 million children at more than 12,000 sites, including schools, migrant worker camps, Indian reservations, libraries, housing projects, Head Start and other preschool programs, centers for children with disabilities, hospitals, clinics, and juvenile detention centers.

Volunteers who work in the program say that RIF dramatically changes children's book reading habits and that young people are reading more in their leisure time, becoming more knowledgeable about books and authors, and improving their reading scores. RIF also gets parents involved in their children's reading, in part because more than a third of RIF's volunteers are parents, but also as a result of RIF's Parent Services program. Established in 1984 through a grant from the John D. and Catherine T. MacArthur Foundation, this program encompasses Growing Up Reading workshops for parents, RIF's Parent Guide publications, and a variety of family literacy initiatives targeted to high-risk groups.

Studies continue to underscore the good sense of the RIF approach of motivating children to read. *The Nation's Reading Report Card*, a study conducted by the National Assessment of Educational Progress, noted the importance of having reading materials in the home and indicated that across all age groups "students who frequently read for fun were likely to have the highest [reading] proficiency."

New Programs for Special Groups

This year, the number of RIF projects multiplied as more and more communities looked to RIF to address



First Lady Barbara Bush and children from Reading Is Fundamental projects plant a Children's Reading Tree on the U.S. National Arboretum grounds, during the annual celebration of Reading Is Fun Week. (Photograph by Rick Reinhard)

their literacy needs. About 15,000 youngsters were added to the program, including Native American children of the Apache, Blackfeet, Cherokee, Choctaw, Havasupai, Hopi, Hualapai, Sioux, and Yaqui tribes; preschoolers in Head Start, Even Start, and other early childhood programs; and teenagers in Boys and Girls Clubs. Altogether, RIF launched 505 new projects, most of which are funded by the private sector.

In an effort to bring books to homeless children, RIF organized an Open Book program and called on publishers and booksellers to donate children's books. Foundations, book suppliers, magazine wholesalers, and other groups responded with funding and by send-

ing more than 75,000 books and magazines, which RIF used to set up reading corners in homeless shelters and other facilities serving at-risk youngsters.

The first statewide RIF program was launched in April when Arkansas Governor Bill Clinton announced "Reading Is Fundamental to Arkansas' Future." The goal of the three-year program is to serve every public school fourth-grader in the state by the end of the third year. Book costs will be partly funded through a challenge grant from the Student Loan Marketing Association (Sallie Mae). Local businesses are expected to match these funds on a dollar-for-dollar basis.

In the fall of 1989, RIF, in partnership with the

Chrysler Corporation Fund, launched RUNNING START, a three-year program to bring books and reading activities to first-graders and their families in 10 cities. The 24,384 participating students read 500,000 books, and more than two-thirds of these students each read 21 books or more. "It was hard," one child commented. "That's why I felt so good when I did it."

Following up on the highly successful citywide reading program in Chattanooga, Tennessee, RIF launched a second City of Readers program in Louisville, Kentucky. Like the Chattanooga program, Louisville's City of Readers will expand the existing RIF program and will be designed to get the whole community involved in reading. The program will be housed in the Louisville Free Public Library and has the full backing and participation of city leaders.

Family Literacy Program

During the last six years, RIF has turned its efforts to developing programs targeted to families, particularly those in high-risk groups. Today, according to *Publishers Weekly*, RIF's family literacy program is one of three initiatives with the potential for making "an impact on the literacy crisis."

Since its Family Services program was launched in 1984, RIF has held Growing Up Reading workshops in dozens of cities; distributed 1.6 million copies of its Parent Guide series here and abroad; produced *The RIF Guide to Encouraging Young Readers*; and, through a grant from the John D. and Catherine T. MacArthur Foundation, developed eight experimental family literacy projects. Last fall, one of these projects—a program for teenaged mothers in a Chicago housing project—won a grand prize in the 1989 Family Circle/CPDA (Council for Periodical Distributors Association) Leaders of Readers program. Another project—a bilingual storytelling club for Spanish-speaking families in Washington, D.C.—was honored with a regional award.

In the spring of 1990, RIF announced an innovative two-year program to meet the reading needs of teenaged parents and their children. To signify that teenagers will be involved in their children's and their own reading development, the program is called Shared Beginnings. Oprah Winfrey, television show host and a

RIF Advisory Council member, has been named honorary chairperson of the program, which is being tested at 11 sites.

As part of its Growing Up Reading series, RIF conducted three parent workshops last year in Greenville, South Carolina; Arlington, Virginia; and Chattanooga, Tennessee. RIF's Parent Guide publications continued to be in great demand. Last year, for example, the Japanese University of Library and Information Science translated and printed two brochures in the series.

In addition to these efforts, RIF conducted a family literacy seminar hosted by the Prince of Wales for the spouses of international business leaders during a business forum in Charleston, South Carolina.

Special Events

It was an eventful year for children in RIF projects across the country. At the United Nations International Literacy Day in the fall of 1989, RIF Chairman Mrs. Elliot Richardson and children from RIF programs in the New York City area joined guest of honor First Lady Barbara Bush and young people from other countries for storytelling and a RIF book distribution. In October, Massachusetts Governor Michael Dukakis proclaimed October 20 RIF Day and kicked off a statewide "Salute to RIF," featuring poetry, poster, and essay contests for children in RIF projects across the state.

In November, the Duchess of York met with RIF staff to learn about the RIF program and joined RIF children for a festive book distribution at the Children's Museum in Manhattan. In December, RIF acted as go-between in a Books-and-Socks Exchange, in which the children of North Carolina textile workers got books and homeless children from Washington, D.C., shelters got warm socks, courtesy of Mt. Airy, North Carolina, hosiery mills.

In January, a ceremony at the White House commemorated RIF's distribution of 100 million books since the program was founded in 1966. Four RIF children presented a collection of children's books to Barbara Bush. About 300,000 children had earlier sent in the names of the books they would choose as RIF's 100 millionth book, and the collection reflected their tastes.

During the winter months, RIF's sixth annual "In

Woodrow Wilson International Center for Scholars

Charles Blitzer, Director

Celebration of Reading,” a nationwide reading campaign, and RIF’s fifth annual National Poster Contest drew the participation of nearly a million children. This year, Juan Gonzalez of Alice, Texas, was named National RIF Reader, and Kimberly Connett of Indianapolis, Indiana, was declared poster contest winner.

In March, the Santa Fe Pacific Foundation celebrated a 12-year partnership with RIF in which Santa Fe helps support needy RIF projects located along the railway line. The celebration, which included a RIF distribution, was held in a lounge car, observation car, and dining car, transported to Washington, D.C.’s Union Station from Santa Fe headquarters in Chicago.

In April, RIF held the sixth annual celebration of reading called “Reading Is Fun Week.” RIF projects nationwide staged reading events and honored local citizens and organizations for promoting literacy. In Washington, D.C., Barbara Bush joined more than 400 youngsters at the U.S. National Arboretum for RIF Week festivities, which included an award ceremony for the National RIF Reader and National Poster Contest winner and the planting of a Children’s Reading Tree on the Arboretum grounds.

The RIF program attracted media attention last year. New public service announcements appeared in newspapers and magazines and on radio and television. Several spots feature Barbara Bush, who talks about her longtime support of RIF. The program was also highlighted on the CBS “School’s In” series, designed to inform the public about innovative educational programs, and in a number of national publications, including the *New Yorker*, *Changing Times*, and a new Department of Education study, “Volunteers in Public Schools.”

In the wake of dramatic political and economic developments that unfolded throughout the world during the past year, the Woodrow Wilson Center’s role as a forum for nonpartisan scholarly research and debate took on growing significance. Since its founding more than two decades ago, the center has stood for eliminating the barriers to communication among scholarly disciplines, between scholars and policy makers, and between Americans and foreigners. As the pace of global change continues to accelerate and as nations and individuals orient themselves in a new world order, the Wilsonian legacy of principled political leadership and an informed scholarly perspective promises to become even more important.

Governance

A highlight of the past year was the appointment of White House Chief of Staff John Sununu to the Woodrow Wilson Center’s board of trustees. The center accepted with regret the resignation of J. W. Marriott, who left the board after two and one-half years of exemplary service. In April, Congress amended the Woodrow Wilson Center’s founding legislation to increase the number of members on its board of trustees. Two positions were added for private citizens to be appointed by the president, and the U.S. secretary of education is now an ex officio member.

The Woodrow Wilson Center’s advisory body of private citizens, the Wilson Council, continued to provide invaluable guidance on many issues that affect the institution’s relationship with the private sector. The council welcomed three new members: S. Bruce Smart, Jr., former undersecretary for international trade at the U.S. Department of Commerce and chairman and chief executive officer of the Continental Can Company; Conrad Cafritz, an active member of the Washington, D.C., real estate and philanthropic communities; and Michael DiGiacomo, a New York financier whose field is international banking.

Program Restructuring

In 1990, the Woodrow Wilson Center undertook a major administrative restructuring that has been re-

flected in every aspect of the institution's work. These organizational changes were implemented to encourage work on comparative and cross-cutting issues. Before the reorganization, the center had eight programs, six of them geographically defined, each of which reported to the deputy director and director. The reorganization created three divisions. The first is concerned with the United States and is essentially a continuation of the previous American Society and Politics program. The second is a Division of Regional and Comparative Studies, which includes the other five geographically defined programs: Asia, Eastern Europe, Western Europe, Latin America, and the Soviet Union (the Kennan Institute). Although this division has an elected chairman, each of the programs continues to have its own director. The third division, International Studies, represents a significant broadening of the previous International Security Studies program to enable it to address such global concerns as the environment, communications, economics, and culture.

Another significant administrative change concerns the annual international fellowship competition. The Woodrow Wilson Center has instituted a single application and selection process and no longer requires that applicants apply through one of the programs. Although program directors and members of their advisory councils continue to play a crucial role in the recruitment and selection process, a single review committee now considers the most competitive applications regardless of programmatic affiliation and recommends to the fellowship committee of the board a single list of proposed fellows and alternates. The purpose of these changes is to ensure uniform standards of judgment for all applicants and to provide a fuller opportunity to select the best possible fellows, judged both individually and as a potential community-in-residence. Changes in the application and selection process seem already to be bearing fruit, since the number of applicants in last year's competition increased 60 percent, from about 400 to 640.

Three major staff changes at the Woodrow Wilson Center completed the programmatic and administrative modifications carried out during the year. Milan L. Hauner, most recently visiting professor of history at the University of California, Berkeley, was appointed the new director of East European Studies. He succeeds John Lampe, who returned to his responsibilities as

professor of history at the University of Maryland. Lawrence Lichty, professor of radio, television and film at Northwestern University, replaced Phillip Cook as director of the Media Studies Project. Finally, the Wilson Center was pleased to welcome former Smithsonian Under Secretary Dean Anderson as its new deputy director for planning and management. He succeeds Jon Yellin, who in September became vice president for finance and management at the City College of New York after five years of service to the Wilson Center.

Conferences and Meetings

The dramatic occurrences that are reshaping Europe and the Soviet Union set the tone for many of the meetings and conferences held at the Woodrow Wilson Center in the past year. Whether planned a year in advance or quickly organized in response to world events, the programs all took advantage of the Wilson Center's international network of former fellows and were characterized by the historical perspective and intellectual rigor for which the center is known.

The largest and most formal conference addressing the state of the post-Cold War world was called "The Helsinki Process and the Future of Europe." Scholars and practitioners from the United States and many Eastern and Western European nations gathered to examine European security and alliance politics, Western European economic integration, Eastern European economic restructuring, and legal safeguards for human and political rights. Woodrow Wilson Center trustee Ambassador Max Kampelman presided over the meeting, which was organized by Deputy Director Samuel F. Wells. Participants included U.S. Representative Steny Hoyer, Polish Solidarity Party leader Bronislaw Geremek, French ambassador Jacques Andreani, and Horst Teltschik, foreign affairs and national security adviser to West German Chancellor Helmut Kohl. The results of the conference were published in August as the first in a new series of Woodrow Wilson Center Special Studies.

Other meetings on the changes in Eastern Europe ranged from noon discussions to formal conferences. The Woodrow Wilson Center's Kennan Institute was a major forum for the wide range of voices emerging from the various nationalities and ethnic groups in the

Soviet Union. Just after the fall of the Berlin Wall, a group of fellows from Eastern European countries spoke to a packed room about the political and economic changes sweeping their countries. Soviet emigré novelist Vladimir Voinovich regaled an Evening Dialogue audience with his satirist's view of Soviet society. The East European Studies program organized a major conference on public health and the environment, which examined the current and potential health hazards posed by the extensive air, ground, and water pollution in that region. A delegation of Cuban scholars met with U.S. colleagues to discuss the impact on Cuba of changing superpower relations.

Outreach and Public Affairs

While debate at conferences and meetings is necessarily limited to event participants, outreach activities ensure that the results of Woodrow Wilson Center programs are made available throughout the nation and the world. The center conducts an active program of publishing and public affairs to reach a broad, nonscholarly audience outside of Washington.

In collaboration with Cambridge University Press, the center publishes the Woodrow Wilson Center Series. Two volumes in the series, *Origins of Terrorism: Psychologies, Ideologies, Theologies, and States of Mind* and *The State and Economic Knowledge*, were issued during the year. The center also publishes books through its own Wilson Center Press. Volumes published in 1990 included *Problems of Balkan Security*, *Portugal: Ancient Country, Young Democracy*, and *Government and Environmental Politics*.

To reach the broadest possible audience, the Woodrow Wilson Center several years ago established Radio DIALOGUE, a weekly interview program broadcast by National Public Radio and the Texas Longhorn Radio Network. With a new production studio and enhanced distribution capabilities, the program has increased its national coverage from 58 to 112 stations. During the past year, 50 fellows and staff members discussed such diverse topics as Congress and the courts, Eastern Europe in transition, Caribbean politics and culture, and the opera and Russian history.

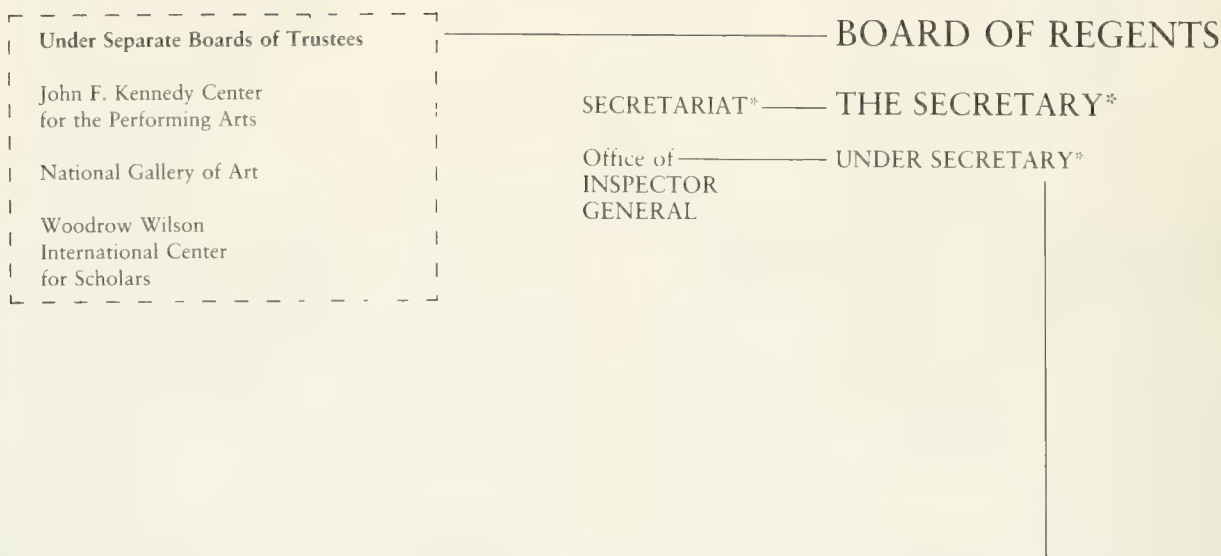
Fellows

At the core of the Woodrow Wilson Center are its fellows, and their accomplishments last year continued to be impressive. For the second year, the National Book Award for nonfiction was awarded to a former fellow for a book written substantially at the Wilson Center—Thomas Friedman for *From Beirut to Jerusalem*.

After a year of political upheaval, many of Eastern Europe's top intellectuals emerged as leaders in fledgling democratic governments; several of these scholars were once Woodrow Wilson Center fellows. Bronislaw Geremek, who studied medieval Polish gypsy life while a fellow at the Wilson Center, was elected the Solidarity Party's floor leader in the lower house of the Polish parliament. Czech economist Karel Dyba became an economic adviser to the Czechoslovakian vice premier. Another former fellow, sociologist Balint Magyar, won a seat in the new Hungarian parliament after participating in Hungary's first free elections in more than four decades, while former guest scholar Geza Jeszensky was appointed Hungary's minister of foreign affairs.

Also in the past year, two recent fellows were appointed to important international positions. Geir Lundestad was named director of the Nobel Institute and secretary of the Nobel Peace Prize Committee, while Ibrahim Gambari was made the Nigerian ambassador to the United Nations. These fellows represent tangible evidence of the Woodrow Wilson Center's success in linking scholarship with public affairs.

President Wilson once wrote, "The man who has the time, the discrimination, and the sagacity to collect and comprehend the principal facts, and the man who must act upon them, must draw near to one another and feel that they are engaged in a common enterprise." The challenges facing our nation and the world in the coming years are ones that Woodrow Wilson would have relished, both as scholar and as statesman. During the past year, the Woodrow Wilson Center continued to bring together the best of the worlds of learning and public affairs to explore Wilson's vision of "continuous protection of liberty by the concerted powers of all civilized people."



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 Financial Services
 Office of Financial Management
 and Planning
 Office of Risk Management
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Assistant Secretary for INSTITUTIONAL INITIATIVES*

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International Environmental Science
 Program
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 Smithsonian Tropical Research Institute

Assistant Secretary for MUSEUMS*

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 Arthur M. Sackler Gallery and
 Freer Gallery Art**
 Conservation Analytical Laboratory**
 Cooper-Hewitt, National Museum of Design**
 Hirshhorn Museum and Sculpture Garden**
 International Gallery
 National Air and Space Museum**
 National Museum of African Art**
 National Museum of American Art**
 Renwick Gallery**
 National Museum of American History**
 National Museum of the American Indian
 National Museum of Natural History/
 National Museum of Man**
 Museum Support Center**

National Portrait Gallery**
 Office of Exhibits Central
 Office of Horticulture
 Office of Institutional Studies
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 Office of the Registrar
 Smithsonian Institution Traveling
 Exhibition Service

*Secretary's Management Committee.

**The assistant secretaries for research and museums collaborate in the oversight of scholarly and presentational activities in these bureaus and offices.

INSTITUTION

BOARDS AND COMMISSIONS

Advisory Council on Education	Hirshhorn Museum and Sculpture Garden Board of Trustees	National Museum of American Art Commission
Archives of American Art Board of Trustees	Horticultural Advisory Committee	National Portrait Gallery Commission
Arthur M. Sackler Gallery Visiting Committee	Joint Sponsoring Committee for the Papers of Joseph Henry	National Science Resources Center Advisory Board
Cooper-Hewitt, National Museum of Design Advisory Board	National Air and Space Museum Advisory Board	Smithsonian Council
Cultural Education Committee	National Board of the Smithsonian Associates	Women's Committee of the Smithsonian Associates
Folklife Advisory Council	National Museum of African Art Commission	
Freer Gallery of Art Visiting Committee		

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Office of Congressional Liaison*
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Office of Telecommunications
Smithsonian Institution Press
Smithsonian Magazine
Air & Space/Smithsonian Magazine
Smithsonian Resident Associate Program

Cover: Computer graphics are becoming increasingly commonplace in today's society, helping people enhance and expand their imagination and creativity. These computer-graphic images by leading graphic artists R.R. Greenberg and Robert Abel are part of a 12-screen video wall in a new exhibition, "Information Age: People, Information & Technology," at the National Museum of American History. (Photograph by Eric Long)

Frontispiece: *Two Public School Teachers* was included in the National Portrait Gallery's exhibition "To Color America: Portraits by Winold Reiss." The German-born artist came to America in 1913 and over the next 40 years produced notable portraits of American Indians, African Americans, Asians, and Mexicans. (Courtesy of Fisk University, Nashville, Tennessee)

∞ The paper used in this publication meets the minimum requirements of the American National Standard for Permanence of Paper for Printed Library Materials Z39.48-1984



